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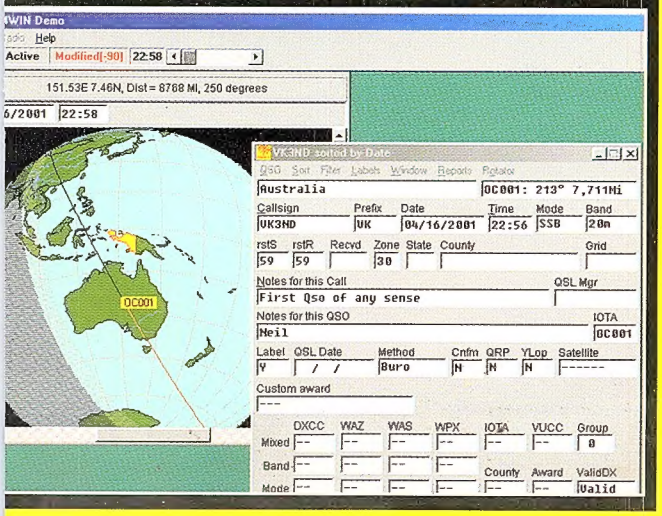

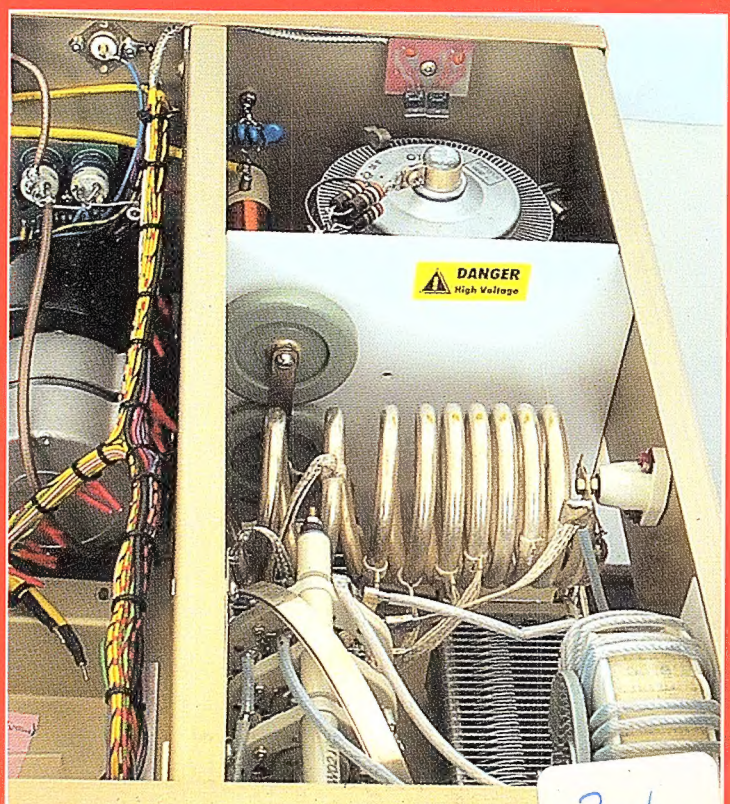

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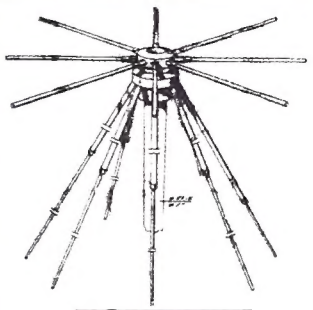

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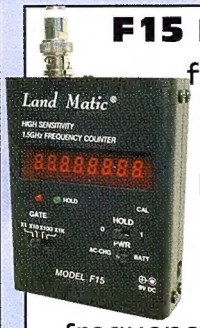

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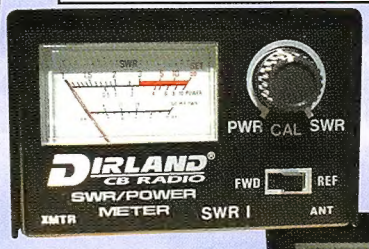

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Number 71 – June 2001

Radio and Communications

Incorporating AMATEUR RADIO ACTION and CB ACTION

Features

22 Building a Radio Shack Steve Ireland, VK6VZ, concludes his article on setting up a shack.

24 Laser Hot Hits Something different from John Batty.

26 The WIA into the 21st Century Martin Luther, VK5GN, on what he believes should be dealt with at the WIA conference - before the event.

32 Is newer really better? Jason Reilly about "new v old".

35 Buying a Scanner A similar theme to Jason's scanners? From Russell Bryant.

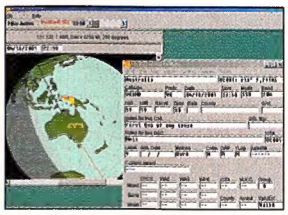
68 Which is Best? Thinking about buying a CB radio? This article from Jason Reilly is a MUST read.

74 The Emtron Team Rudi Breznic and his team at Emtronics have established a strong export market for Australian built linear amplifiers. Neil Duncan, VK3ND, visited the production line and came away impressed.

Reviews

10 Kenwood's TS-2000 We promised to obtain a TS-2000 for review, Kenwood willing or not. Ross Keogh of Strictly Ham provided one and Neil Duncan, VK3ND, has carried out a full review.

14 The Best Logging Program? If you are looking for a "logging" program the DX4WIN will amaze you - arguably by far the best we have yet sighted.



Regulars

8 Editorial This editorial is different. It presents Martin Luther's "notes" from the recent WIA conference. We think it is MUST reading by ALL amateurs - WIA member or not.

18 Internet Info Regular Tom Sundstrom's, W2XQ, review of what's worth viewing on the Internet

29 6M Activity Jack Haden, VK2GJH, brings 6m devotees right up to date with the recent activity.

38 What's worth knowing More from Neil Duncan, VK3ND

40 Modifications Plenty of tips from Greg Towells, VK2GJT.

43 DX List The fifth and final instalment of the "Longest DX List"

47 Circuits Galore Jos Hahn series with DTMF Decoders continues.

51 Shortwave Latest Craig Seager will bring you right up to date on what and where it's happening.

54 DX Band & IOTA When there is action in the DX world Jim Smith, VK9NS, is usually first with the info.

58 Scanner software Russell Bryant's looks at the software making scanner performance even better.

60 The 27MHz DXer The longest running 27MHz column in the free world, well we like to think so. By Jack Haden, VK2GJH.

64 Listening with a Difference John Batty's latest on the utility listening scene.

70 Flightwatch Bob Bell's, VK2UTG, with frequencies to listen.

78 DX Propagation charts tell you what sort of a DX month you're likely to have.

80 Classifieds All the goodies are listed on these pages – get in quick before they're sold.

82 Support Team Advertiser's index for quick reference.

July issue on sale June 20

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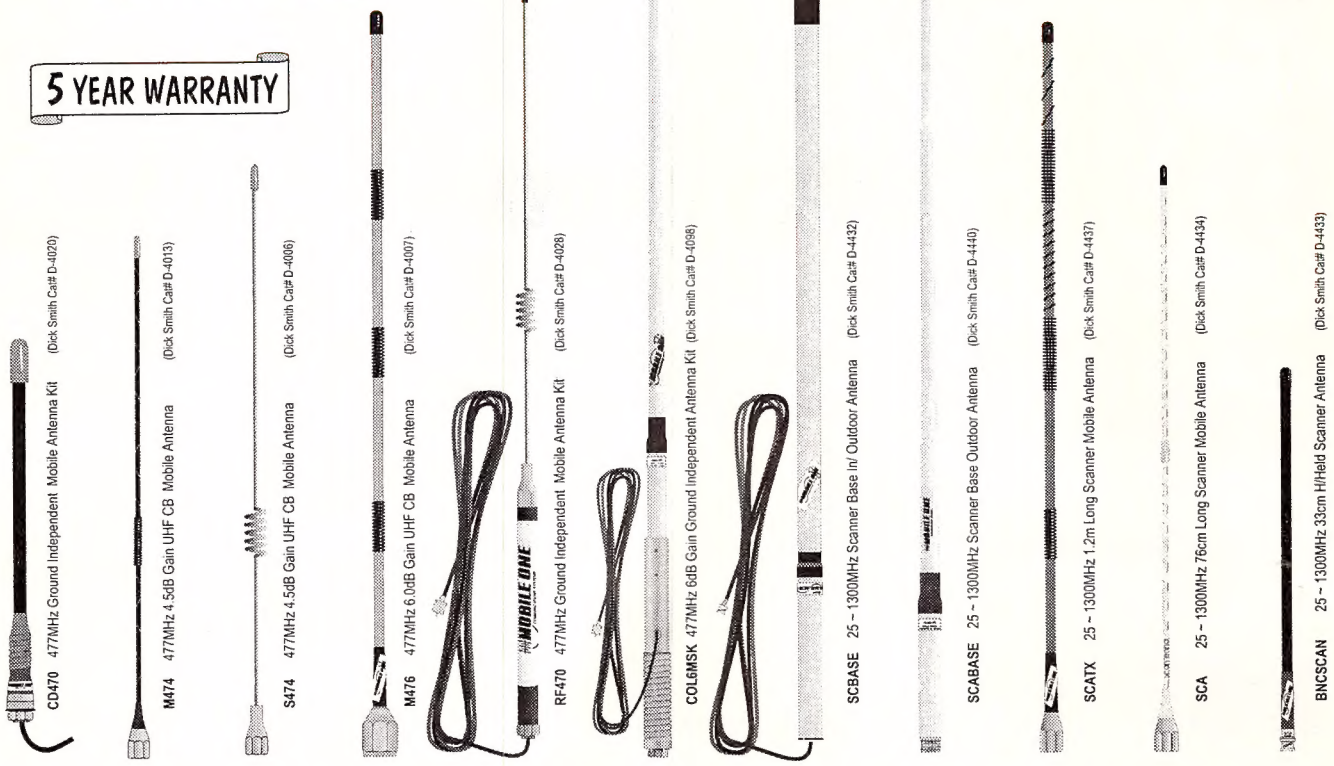
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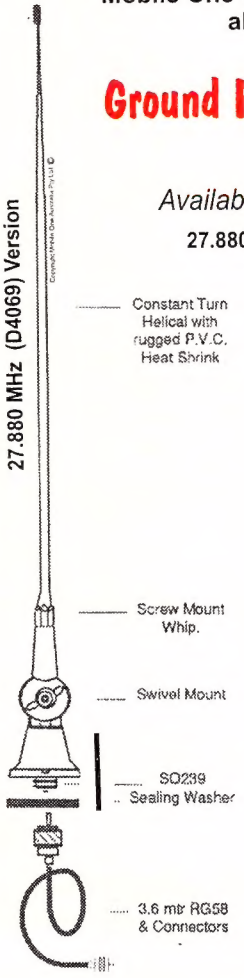
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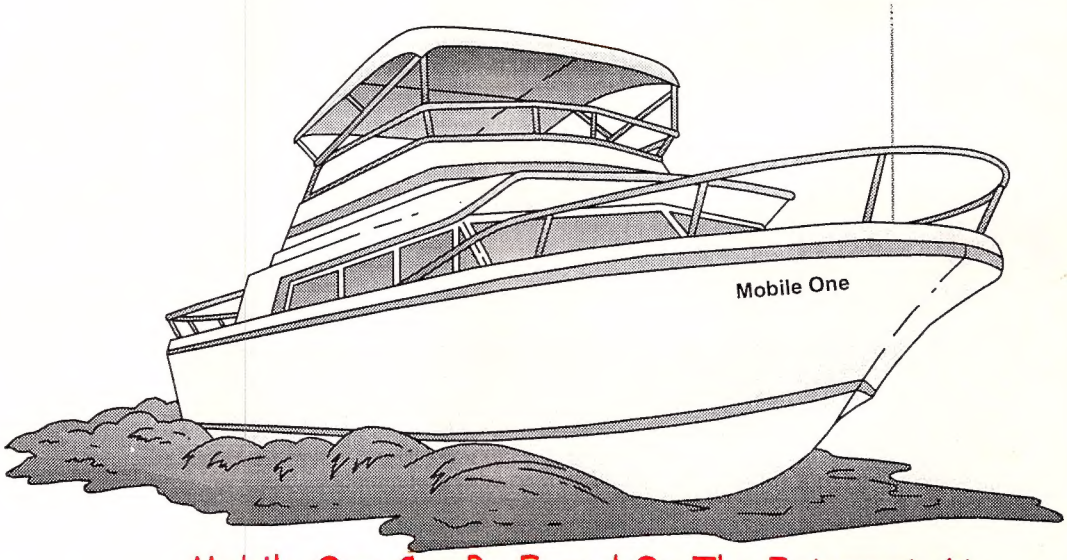

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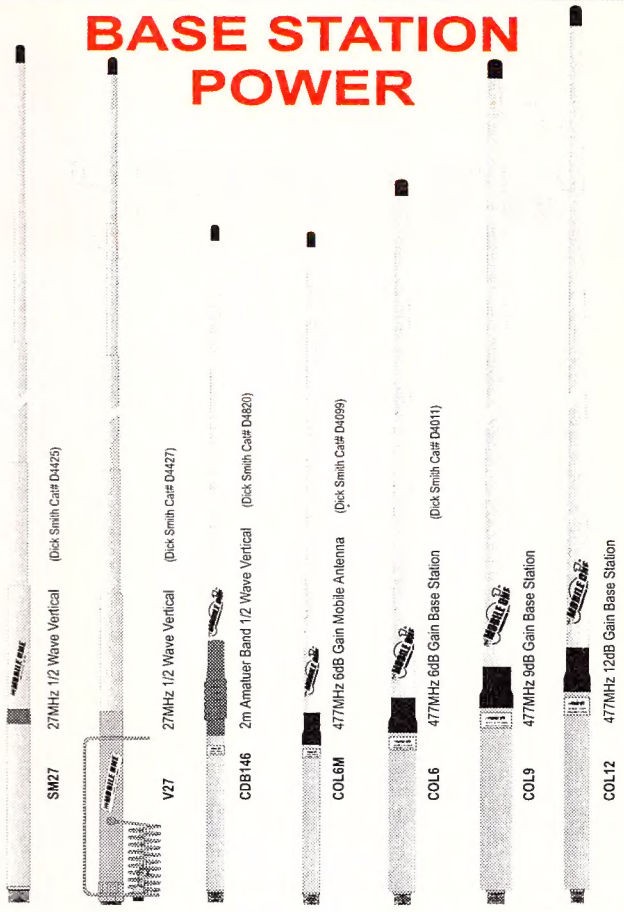
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Also includes:
- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312

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D 3317

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Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur, CB, and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps).
A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with alpha-numeric tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dual Watch memories, and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to allocate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x "AA" size alkaline batteries, and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-5 adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

D 2799

YAESU $599 SAVE $100

2577 DPS 4COL

DON'T MISS THE ACTION!

YAESU VX-150 5W 2m handheld

Compact yet incredibly rugged, the new Yaesu VX-150 2m handheld is designed to perform under the most demanding conditions. The VX-150's diecast aluminium case provides excellent transmitter heatsinking, allowing 5W RF output as standard, while assisting the radio to meet the tough US MIL-STD 810D/E shock and vibration ratings. A large high-output speaker, heavy-duty belt-clip plus illuminated keypad and LCD screen make the VX-150 a pleasure to use.

Features:

- Tx: 144-148MHz, Rx: 140-174MHz • RF Output: 5W with supplied 700mA/h NiCad pack
- Direct keypad frequency entry, CTCSS and DCS encode/decode, battery voltage metering
- Simple Menu system • Over 200 memories • 7 digit Alpha-numeric memory labelling
- Tx and Rx Battery Savers • Case measures just 58 x 108.5 x 26.5mm WHD
- Comes with FNB-64 7.2V 700mA/h NiCad, flexible antenna, and overnight AC charger

D 3648

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NEW FOR 2001

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient Menus with 35 "set and forget" functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.

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Editorial comments...

I seriously questioned my own reasons for running the accompanying text from Martin Luther.

Was it simply that it made for controversial reading or was it rather that it should be read by all amateurs, not only WIA members — the answer was obvious.

Given that there is now an apparent alternative to the WIA – namely the Amateur Radio Australia Inc group, all amateurs should be made aware of it.

As an amateur I wear two very different caps. One concerns my personal interest and activity as an operator (and a non-WIA member) while the other is as Editor of this publication.

On this occasion, however, as an operator I believe in what Martin Luther is trying to achieve – namely to get the WIA back on track. As Editor I believe that his efforts should become common knowledge to all those interested, after which they can make their own decisions.

I personally believe that the WIA should continue as the official body for Australian amateurs – but only if it at least tries to get its act together.

Judging from Mr Luther's report, they are studiously avoiding it.

I will only make one specific comment on what is reported below, and that is that $30,000 is a lot of money for a modestly funded organisation to spend on sending representatives to Venezuluela and Taiwan.

As an operator I have a degree of interest in this figure and, while I will probably be told it's none of my business as a non-WIA member, I invite the Association to provide R&C with its reasoning.

This magazine has no hidden agenda in the "ARA group" versus the WIA. However, as the only commercial amateur type magazine currently available in Australia, we firmly believe our readers should be kept as informed as possible on WIA matters.

I strongly suggest that you first read Mr Luther's report on page 26 of this issue before reading the following – which came to hand literally as we closed for press. Martin's initial report (p26) was written prior to the convention and will explain much of what follows.

Report by Martin Luther VK5GN

INTRODUCTION

I attended the convention held over the last weekend in April as an alternate delegate from VK5.

I have written this as an overview that represents my opinion on what important. It is not intended to be a set of minutes or even a comprehensive report. That can be obtained from the official versions.

It is my own idiosyncratic and sometimes cynical version of a meeting that confirmed my view that the WIA does not work.

It is my own idiosyncratic and sometimes cynical version of a meeting that confirmed my view that the WIA does not work.

On the surface, the business of accounts and reports seemed to go well. However, there was no debate leading to action.

At a time when many amateurs and others are pessimistic about the future of our hobby there was no debate leading to a strategy for our future.

There was no debate about what we want Amateur Radio to look like in five years or 10 years. As a National organisation the WIA has no clear idea on where it and our hobby are heading.

I was very concerned in talking to delegates to find how many were bringing not just their knowledge and skill to the table but also a set of detailed instructions from their State Divisions. This makes a mockery of debate at the National level.

That our pressure has had some effect on this meeting was shown by the uncomfortable attempts to avoid the word National. These included "National, umhhh I mean Federal" and "small n national". I counted 15 of these before I got bored with it. Who were they scared to upset? Does it really matter?

I will not comment on each motion or agenda item but on subject areas of interest to those of us who believe there is a need for vision, strategy and tactics for the WIA.

ACA RELATIONSHIP

At various times during the convention comment was made about the ACA.

These included:

- The ACA would like to see Amateur Radio go away. It involves a lot of work for no return.
- The international ACA people have a good relationship with WIA.
- The ACA will soon call tenders for examinations. There would appear to be no advantage to the WIA from their years of saving the ACA money by running exams for them.
- The ACA is overloaded and understaffed so they want us to replace our regular meetings with correspondence by letter. There was no debate about this.

Is the relationship a result of personalities rather than policies? Can the WIA apply more political pressure so as to raise our importance level?

Why was the WIA totally ignored in the 420MHz fiasco? The relationship with the ACA is the most important for Australian Radio Amateurs. It received NO significant debate or discussion.

INTERNATIONAL, IARU. ITU

Grant Willis and David Wardlaw spoke comprehensively of the issues that are developing towards the next WARC in a couple of years time.

They presented a costing showing that over $30,000 will be required within two years to fund representatives to go to the WARC in Venezuela and IARU Region 3 in

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Taiwan. This despite the fact that one representative, David Wardlaw, will be paid for by IARU – in which he is a very well respected officer.

Their report made 15 recommendations to council. These were rushed through late on the second day with almost no discussion or debate.

The costs were discussed in relation to whether the subscriptions of members should be increased. The National (sorry, Federal) directors advised that present provisions would be enough for these meetings but then two years after that we will be short of funds for the next round.

It was noticeable that no division, despite the fact that some have very considerable assets, made an offer to donate monies to help with these costs which are in the best interests of ALL radio amateurs world wide.

I confess to cynically remembering the passage in my paper that talks of directors building assets long after Amateur Radio has ceased to exist.

THE WIA INTO THE 21ST CENTURY PAPER

There was a motion from VK6 that my paper be discussed.

The motion was withdrawn in favour of a general "in committee" style discussion. The gossip suggested that the VK3 division had one of their secret legal opinions that such a motion would be illegal.

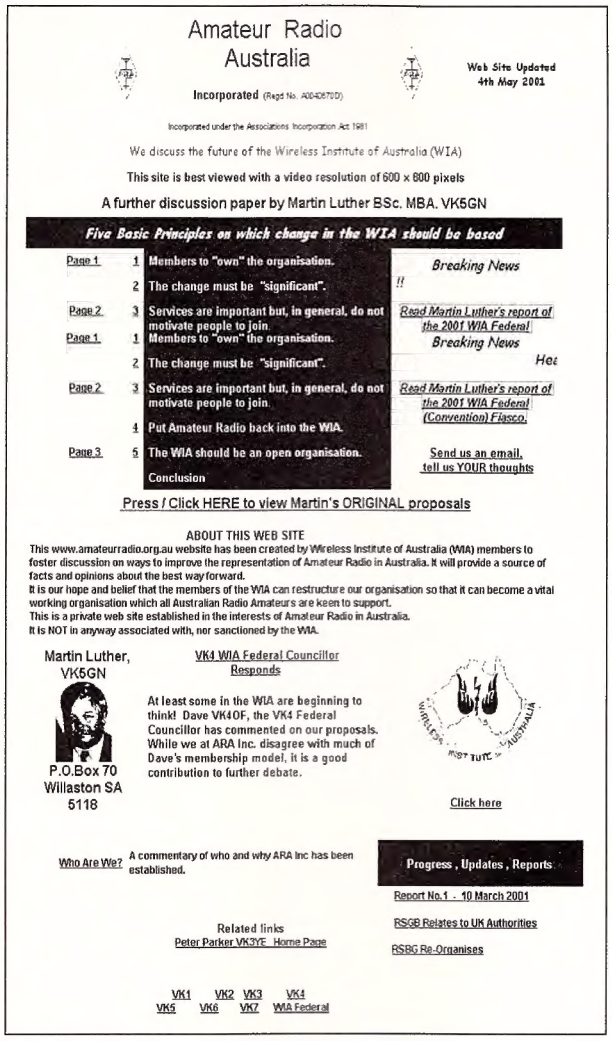
PROBABLY FATTENING TOO!

As there has in the past been great reverence applied to "legal opinions" at this forum I emphasised my experience and qualifications to give the advice that : "The WIA as it is currently structured does not, and cannot, work in the best interests of radio amateurs in the modern world."

My paper should perhaps be called a management opinion!

I spoke to my paper and the subsequent communications from many radio amateurs. I presented the list of five principles which I believe should underpin any changes. (see www.amateurradio.org.au where all the papers are available).

The subsequent debate latched onto communications as the problem. The council was of the opinion that the WIA is really just not telling us what it does. They had not after all realised that we were all too lazy to go out and ask for the information we want!


Amateur Radio Australia
Incorporated (Regd No. A0040670D)
Web Site Updated 4th May 2001
Incorporated under the Associations Incorporation Act 1981
We discuss the future of the Wireless Institute of Australia (WIA)
This site is best viewed with a video resolution of 600 x 800 pixels
A further discussion paper by Martin Luther BSc. MBA. VK5GN
Five Basic Principles on which change in the WIA should be based
Page 1 1 Members to "own" the organisation.
2 The change must be "significant".
Page 2 3 Services are important but, in general, do not motivate people to join.
Page 1 1 Members to "own" the organisation.
2 The change must be "significant".
Page 2 3 Services are important but, in general, do not motivate people to join.
4 Put Amateur Radio back into the WIA.
Page 3 5 The WIA should be an open organisation.
Conclusion
Breaking News
!!
Read Martin Luther's report of the 2001 WIA Federal
Breaking News
Hea
Read Martin Luther's report of the 2001 WIA Federal (Convention) Fiasco.
Send us an email, tell us YOUR thoughts
Press / Click HERE to view Martin's ORIGINAL proposals
ABOUT THIS WEB SITE
This www.amateurradio.org.au website has been created by Wireless Institute of Australia (WIA) members to foster discussion on ways to improve the representation of Amateur Radio in Australia. It will provide a source of facts and opinions about the best way forward.
It is our hope and belief that the members of the WIA can restructure our organisation so that it can become a vital working organisation which all Australian Radio Amateurs are keen to support.
This is a private web site established in the interests of Amateur Radio in Australia.
It is NOT in anyway associated with, nor sanctioned by the WIA.
Martin Luther, VK5GN
P.O.Box 70 Willaston SA 5118
VK4 WIA Federal Councillor Responds
At least some in the WIA are beginning to think! Dave VK4OF, the VK4 Federal Councillor has commented on our proposals. While we at ARA Inc. disagree with much of Dave's membership model, it is a good contribution to further debate.
Click here
Who Are We? A commentary of who and why ARA Inc has been established.
Progress , Updates , Reports
Report No.1 - 10 March 2001
RSGB Relates to UK Authorities
RSBG Re-Organises
Related links
Peter Parker VK3YE Home Page
VK1 VK2 VK3 VK4
VK5 VK6 VK7 WIA Federal

My brain popped back to the quote from one of my correspondents who said, "Best of luck in your endeavours but until the organisation, like an alcoholic, admits it has a problem, nothing much will happen." He's right!

As I sat and listened to the smoke screens, red herrings, irrelevancies and general elitist views on our members my mind slowly descended into lethargy. I was reminded of the just read. They are described thus: "They glory in decay and despair, they drain peace, hope and happiness out of the air around them (Harry Potter and the Prisoner of Azkaban, by J.K.Rowling)."

Not being a Wizard I was unable to see the Dementors, but I felt their presence in Melbourne last weekend! The result? The discussion ran out of time with no actions planned or taken. Do nothing and hope it will all go away!

MARKETING

A motion was carried that the WIA should research the people who take the exams so as to see if we can better target Amateur Radio to others with a similar background.

A good start. However, it needs to be wider and will certainly cut across "States' rights" if it is to be done properly. This was apparently policy.

NATIONAL COMMUNICATIONS.

The VK4 division offered the services of Graham Kemp and his very professional Qnews as the basis to prepare broadcasts for national distribution.

Their idea seemed to be to prepare a news bulletin in three parts. General Amateur Radio, National WIA, and local amateur/WIA. The last segment to be added in the local area of the broadcast. Graham has access to professional audio editing equipment as well as working himself, in radio.

I have no real idea why this motion failed. It was not considered to be policy and there were all sorts of weird and wonderful reactions to it.

I like to keep things simple. Some guy who is good at it offered to help with the problem of communication, the WIA convention turned him down. The same convention said they had a problem with communication. I'm confused!

The debate on this was so wooly that I am sure that each and every delegate will have their own spin to put on it. The minutes will be no help because the proposer ended up confused as well and withdrew the motion. It was eventually passed as a motion that the Federal President or nominee would prepare a monthly report to members.

Similar motions to establish an outgoing QSL bureau clearing house in VK2 and a national bookshop in VK2 were also defeated or withdrawn (I can't exactly remember) as they were not "policy".

SUMMARY

I will leave all the technical details like who the officers are, what the financial reports said and so on to the official WIA journals.

Although, if they follow past procedures, you will not learn much except the spin. You are not allowed to see all the details – "they" have decided to keep them confidential.

However, if you really want to see all the federal papers ask your federal councillor. Be prepared, however, to cast an "anti-Dementor" spell before reading them!

I am glad I went. It confirmed my view that the WIA as structured cannot work. I will now enlist support to continue pressuring the organisation to change.

– Martin Luther, May 2001

Multiband, multimode, multi-everything Kenwood's TS-2000

Reviewed by Neil Duncan, VK3ND

Well, we did say in our last issue that we would get hold of a TS-2000 from somewhere or other as we sure couldn't obtain one from Kenwood. This one came from an unlikely source - namely Ross Keogh's Strictly Ham, and it was his own personal unit. Neil Duncan carried out the review at fairly short notice and, as you will read, he likes it....and many thanks Ross for making it available to us.

It has finally arrived - the curved-look front panel. I mean, it is the design we had to have, isn't it?

Let's face it, there are jellybean-shaped cars on the road, there are funny looking curved keyboards in the world of computers so why not a curved panel for an amateur radio set? But Kenwood's new TS-2000 offers more than just a jazzy-looking front face and layout. This new gem is a true all-mode, all-band rig, providing 100 watts on HF, 6 metres and 2 metres, 50 watts on 70 centimetres, and if you have the soon-to-be-available UT-20 1.2 GHz module installed, you'll have 10 watts up there too.

Working your way through all of the features of the TS-2000 is no mean feat, I can tell you! Just when you think you have seen all of its best tricks, there is yet another innovative feature lurking just around the corner, waiting to surprise you.

Innovations such as a 'Times Square' rolling display of data along the bottom of the screen, superb 'shift and width' selectivity facilities and twin receivers are innovations representing just the tip of the iceberg.

Perhaps a list of some other key attributes of the TS-2000 is in order:

- High performance IF DSP on the main-band receiver.
- AF stage DSP on the sub-band receiver.
- All-digital filtering.
- Full 'satellite-mode' operation with all-manner of goodies.
- 300 memories.
- Wide band receiver 0.03 - 60 MHz with more segments all the way to 1300 MHz (if an option is installed).
- Dual receive, (HF and 2m or 70cm) (2m and 2m) (70cm and 70cm).
- Built-in antenna tuner for HF throughto 6 metres.
- Built-in packet modem for DX packet-cluster tuning.
- Built-in RS-232 computer control interface
- Built-in high stability TCXO (0.5PPM)
- CTCSS & DCS encode/decode
- Electronic CW memory keyer.
- Backlit front panel
- Five antenna ports on the back panel,

two for HF and 6m, one for 2m, 1 for 70cm, and one for and HF receive. Maybe one day, you'll have one more for the 1.2 GHz option ...

- Quadruple conversion main receiver.
- Speech processing, with audio response tailoring.

It wasn't that easy wrestling the review radio from Ross Keogh of Strictly Ham in Bayswater, Melbourne. Not only has he sold every TS-2000 in the first batch that he was supplied with, he had a queue of people wanting to buy this demonstration TS-2000!

Nevertheless, he kindly supplied it to R&C and it is right here in front of me as I type.

Want a quick summary of the TS-2000 in one word? It is this ... fantastic!

I pronounce the audio quality from this little set both on receive and on transmit to be the pinnacle of Kenwood's achievement. Just about everyone you work on the voice modes comment immediately on the quality of the sound - the Kenwood tradition for excellent audio is alive and well.

The receiver is definitely a joy to listen to as well - and to me, it is true hi-fi!

The TS-2000 is quite small. When I first took it out of the box, I was most surprised, expecting a big, imposing looking brute, something like one or two of the opposition rigs. Nope, it is quite petit really - well, from the front panel perspective anyway. It's a bit further from the front panel to the back panel. And why not! Wait until you see what Kenwood has packed into this little box!

One reason for the small size stems from the fact that you have to supply your own 12-volt power source - or to be precise, 13.8 volts +- 15 per cent (and they insist on this accuracy, or the rig will switch off in umbrage).

The need for DC power is a bit odd I reckon, since the rig is more likely to be used as a base station than as a mobile, given its complexity.

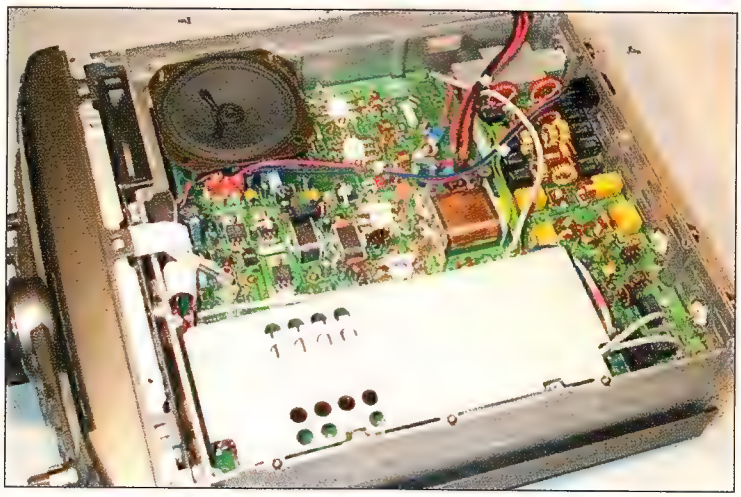
Even more interesting is the fact that a second version of the radio, the TS-2000X is being developed and will include a remote front panel. So maybe I'm wrong about the 'mobile' bit, but to me, there are definite 'minuses' associated with running a complex set mobile, or running a base station from a DC supply. So anyway, I found a 12-volt source and plugged it in.

When you first turn this rig on, you are presented with just a tad of visual overload. The superbly clear, 143 page manual will definitely be needed.

The purpose of some of the button markings (such as BC, MGSEL and PF) might not be immediately obvious to you. The array of backlit buttons and the huge, orange screen all look quite spectacular and I dare say they would give quite a light show if you care to stick one in your front window on Christmas Eve.

Despite the presence of 66 multifunction buttons and an awesome menu system lurking in the background, I have to say that Kenwood has laid things out in an extremely intuitive and pleasing manner. When you start to unravel its secrets, the buttons and knobs seem to be just where they ought to be.

Some time back, I was lucky enough to have a go at a TS-870S, so perhaps that experience gave me some insight into how to learn to use the TS-2000.



I note that the HF technical aspects of these two rigs seem to be similar although in practice, the TS-2000 designers seemed to have improved things all over the place.

One by one, I tried various features. There are plenty of opportunities to plug in your favourite antennas for the different bands. I mean, just look at that back panel - it fair bristles with sockets!

Getting up and running for HF operation was a breeze, even if I had to have a good look to find where the band-up and band-down buttons were. Logically, I found them next the main tuning knob, marked '+' and '-'.

In almost no time, I managed to work a few 20-metre stations SSB and one station on CW, just to get a feel of how it all works. I was left wondering this - would you ever get used to the unsolicited reports you get about the audio quality? I must admit, I found the flattery a bit tiring after a while!

Next I tried FM on two and 70, where I managed to run into some friends on one of the repeaters I normally work on the way to work in the car. Really, you have a full FM transceiver at your fingertips with this radio, with heaps of memories, repeater offsets, tones, band-plans for repeaters and so on.. It is all definitely a breeze to run.

Needless to say, the guys I worked were more than impressed with what they heard. How could they miss me either, with a full 100 watts on two metres and 50 on 70 centimetres! I mean, that is sheer grunt!

It is about this stage that it dawns on you that there are two quite independent receivers built into the TS-2000.

The main one gives you the whole lot, all modes with frequencies from DC to daylight (well, almost), while the sub-receiver offers FM and AM and covers from 144 MHz upwards.

Its broadband receiver goes well outside the amateur bands and offers the AM aircraft band, and some of the 'special services' frequencies that some like to monitor while we should be doing other things. Now, if you want, you can assign the transmitting function of the TS-2000 to the sub band, with full control of power and so on.

The range of features on the TS-2000 for the VHF and UHF operator are simply wondrous. Not only can you use all the classically HF features such as DSP 'up there', but there are some extras features for the real experimenter, too.

Top of this list for many will surely be the fully fledged satellite system just itching to be used! You can do things like make one band tune 'upwards' up while the other tunes down - or the reverse, as you turn the main dial.

There are other little knick-knacks like facilities for coping with Doppler shift too, should the little blighters up there in space be moving really quickly. And I like the cute picture of a satellite drawn on the satellite button ...

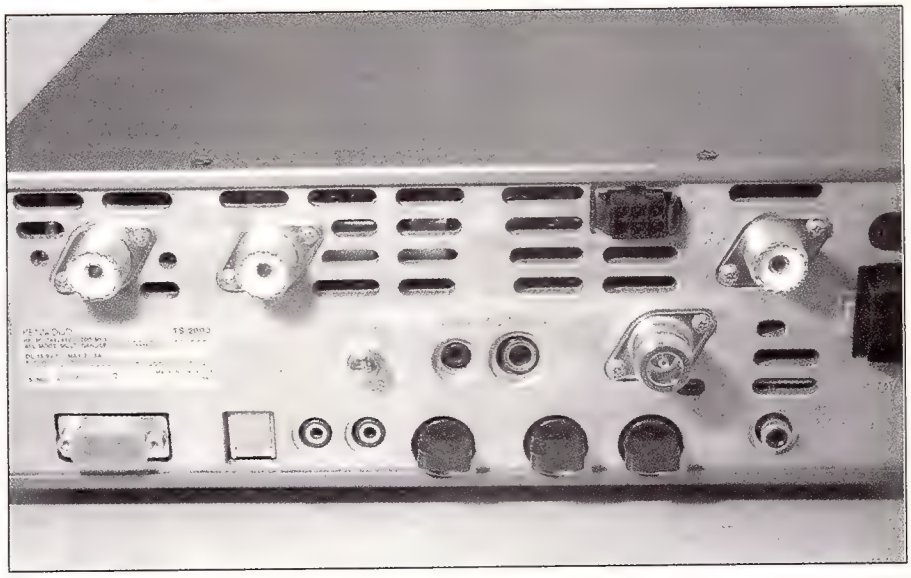
I found the sensitivity of both VHF/UHF receivers, the cleanliness of them both with respect to cross modulation and general quietness to be all quite excellent.

Certainly in these respects, I found the TS-2000 to be more than a match for some of the dedicated VHF/UHF sets I have tried of late and definitely, it is way superior to any of the 'benchmark' sets I own. How designs improve as time marches on!

IT'S LIKE HAVING TWO SEPARATE RIGS

Having a TS-2000 is just like having two separate rigs, one a high-powered,

satellite-capable VHF/UHF transceiver and the other, a full-blooded DSP HF rig. What is more, heaps of the functions of the 'two rigs' are available simultaneously, if you want.



The main tuning knob is smallish and has no hint of flywheel spin to it, but for that rapid QSY, there is always the smaller knob to the right, whose primary function is 'channel changing' on VHF/UHF, but is also there to be used for rapid QSYs. To do the reverse (to invoke an ultra-slow tuning rate) is also possible - and once selected, is easily made 'at the ready' next time you select the current mode. That is, when you select SSB you get one tuning rate, when you select FM you get another and so on - and yes, pushing some of the buttons gets you a CW announcement of what you just pressed in good old traditional Kenwood style.

The DSP functions on the TS-2000 are quite an upgrade on the TS-870S DSP, as if that weren't a spectacular enough system. For example, you can use more than one DSP function at the one time, such as the auto-notch filter, noise-reduction system or the manual beat-cancelling system, all of which are excellent.

Now, I reckon that the 'shift and width' system implemented here is really outstanding. How can you ever do without it if you, for example, must return the rig in couple of days?

The selectivity systems are all quite amazing - I love them! On SSB, there is a pair of knobs for setting the position of the upper and lower 'walls' of the selectivity curve, with a numeric display on the screen appearing as you turn them (the 'width' display is curved, of course). On CW, one of the knobs becomes a width control while the other becomes a shift control.

Yes, the implementation for CW is just excellent too. Is the result as good as 'real' crystal filters? With the short time I had the radio it is hard to say. Maybe not, but the DSP system must come mighty close. But now add to that the extreme flexibility that you get with all that variability and precision. Nope, I reckon DSP filtering is the way to go.

I found that as you tune around the HF bands, some signals sound a little 'dirty' as you fly by them. This, I am afraid, is a price you pay for having a DSP system at your fingertips. Once you stop moving that main knob, the transformation is miraculous. A perfectly clean signal suddenly emerges!

... not only will the TS-2000 allow you to be part of that thriving community, but it will also automate part of the operation for you. Once it decodes a suitable packet-radio signal, it will set the your radio up on the correct (announced) frequency and tell you on the screen just who that station is - all ready for you to be the first to leap. Not bad eh?

People who still own record players and refuse to buy CDs probably will prefer an analogue VFO with real crystal in their filters. Me? I think the selectivity systems of the new millennium are just superb!

AND THE OVERALL PERFORMANCE?

So how is the rig's overall performance on HF? Can it hear weak signals on a crowded band for example? Yes indeed, the front-end design and the excellent DSP flexibility give you definite access to such signals.

Do the noise reduction and noise blanker systems work well? Again, yes, but expect that 'Darth Vader' sound if you crank things such as the adjustable noise blanker level up too much.

So what's this I hear about a built-in packet modem? Well, it is not a full packet-radio interface unless you plug your computer into the RS232 port on the back - then it becomes a full-bore 300/1200/9600 modem.

In the off-the-shelf radio, what you get without any other external device is a full AX-25 TNC, whose only function in life is to wait for 'DX cluster' information.

It seems that there are 'packet people' out there who operate what are known as DX clusters. The idea it seems is that you listen to these and occasionally they say to you 'hey, rare DX is on 14.123' (or similar). Presumably hordes of people who hear this will immediately twist their dials and pounce on the poor blighter.

Now, not only will the TS-2000 allow you to be part of that thriving community, but it will also automate part of the operation for you. Once it decodes a suitable packet-radio signal, it will set the your radio up on the correct (announced) frequency and tell you on the screen just who that station is - all ready for you to be the first to leap. Not bad eh?

I dunno, it seems a bit unfair...

The TS-2000 has some awesome facilities for the digital modes at you disposal too, if you care to connect it to an external multimode box along with your computer. Having done this, using RTTY, AMTOR, CLOVER and so on should prove a breeze, because of the radio's ability to tailor its operation specifically to those modes.

The frequency stability with the high-stability master oscillator supplied as standard is not the least of these features, either. The manual devotes pages and pages to describe how much trouble the designers have gone to, to optimise the radio for the digital modes.

Sadly, I did not try the digital modes while I had the TS-2000 on loan, but the CW facilities I sure did and wow, are they good! A fully adjustable keyer, the message memories, precise frequency control facilities, auto zero beat, rise time adjustment,

excellent IF filtering and a crystal-clear on-air presence all help.

SO WHAT'S INSIDE?

Let's take the cover off the radio. What we see inside is heaps of shielding, metal and more metal and more shielding. It is a bit hard to find the electronics! But overall, what I note is that the TS-2000 has a diecast aluminium frame along with top and bottom covers of pressed steel, so one thing that is for sure, the set is sturdy and is well constructed.

The complexity of the TS-2000 is quite daunting though, and I note that if you eventually do get your hands on the 1.2 GHz module, you will need to get Kenwood to perform the installation for you.

There are all kinds of technical things to do, not the least of which is to modify the software. Which reminds me, you can get software for remote control of the radio via a computer. It carries a price tag, but support for this software in the form of a upgrades, comes from an Internet site.

Because a full discussion about all of the features of the TS-2000 may take too long, I will rattle off a few more things that it has hiding under the bonnet. Ready? You can

- Tailor the audio frequency response of the microphone
- Tailor the receiver's audio frequency response
- Send audio from the two receivers to two separate loudspeakers
- Set a timeout for those embarrassingly long transmissions
- Control a transverter, complete with frequency adjustments
- Control power output with watt-by-watt precision
- Clone data to six other kinds of Kenwood radios
- Adjust linear amplifier switching timing
- Connect a receive-only antenna
- Program four different call channels
- Use quick memories
- Adjust the display brightness
- Scan the memories, an entire band, call channels or display results on a bar graph.
- Name the memories (which are arranged in 10 'banks')
- Select an A or B VFO
- Choose S-meter squelch
- Digitally alter the microphone gain
- Preset the mode to be used for various frequencies.
- Adjust the AGC response
- Install an optional voice recorder
- Do some 'repeater-like' things that I maybe won't mention...

Now if that is not enough, you might like to ponder about the overseas users who have purchased the 'X' version of the TS-2000 (the TS-2000X!). They are able to control their rig with a removable front panel or with another a Kenwood handheld radio or even with another TS-2000. They can set up a fully operational cross mode, crossband repeater too. Now, there are some good remote control ideas lurking in there, I reckon!

The built in antenna tuner works very well; it is fast and memorises things well, but is really designed for correcting minor SWR errors on a resonant antenna system. You really need to buy a fully fledged, space-consuming ATU if you intent to load up the gum trees in the backyard.

On the 'what could be better' list , I would note these: there is no provision to power a mast-mount pre-amplifier for VHF or UHF; a total lack of any discriminator information on FM, which would seem essential for serious FM satellite operation; the internal packet modem and CAT control share the same port on the back panel which should prove a challenge for some, and connection to linear amplifiers should be done with reference to how the switching circuits work - carefully.

Finally, I noted a few birdies and strange signals as I tuned the spectrum with the antenna disconnected - but they are few in number and agree with the list published in the manual.

SUMMARY

The TS-2000 is a very powerful, well-designed radio, suiting both the HF and the VHF/UHF enthusiast. Its power output on the amateur bands from 160 metres is just right and its beautifully implemented IF DSP facility puts it in the new-millennium class.

Those 16-bit DSP chips and the 100 MHz CPU with 24-bit A/D and D/A converters certainly do the trick. The receivers are excellent with exceptional freedom from intermodulation problems and without any hint of desensing or AGC pumping from rock crusher signals sitting on adjacent channels.

The 300 memories, the satellite facility and the endless options available from the front panel and from the menu system, will keep a wide range of enthusiasts happy for ages! Current RRP is $3999 but check your supplier for the latest dollar-dependent details!

Radio and Communications thanks Strictly Ham, Bayswater for the loan of the review transceiver.

Specifications Modes:

- SSB, AM, FM, FSK
- Memory channels: 300
- Antenna impedance: 50 ohms
- Supply Voltage: DC 13.8 +- 15% at 20.5 amps max and 2.6 amps or less, receive (no signal)
- Frequency stability and accuracy: (-100 C to 500 C) within ±0.5 PPM
- Dimensions (W x H x D projections included): 281 x 107 x 371 mm
- Weight: approx. 7.8 kg

Transmit frequency coverage (version dependent):

- 160 m band 1.81 - 2.0 MHz
- 80 m band 3.5 - 4.0 MHz
- 40 m band 7.0 - 7.3 MHz
- 30 m band 10.1 - 10.15 MHz
- 20 m band 14.0 - 14.35 MHz
- 17 m band 18.068 - 18.168 MHz
- 15 m band 21.0 - 21.45 MHz
- 12 m band 24.89 - 24.99 MHz
- 10 m band 28.0 - 29.7 MHz
- 6 m band 50.0 - 54.0 MHz
- 2 m band 144 - 148 MHz
- 70 cm band 430 - 450 MHz
- 23cm band 1240- 1300 MHz with the optional UT-20
- Output power: 100 watts 160 m - 2 m, 50 watts on 70 cm, 10 watts on 1.2GHz, less on AM.

Receivers:

- Main transceiver on SSB, CW, AM, FSK: Quadruple conversion. FM: Triple conversion.

Sub-receiver: Double conversion.
Frequency coverage, main transceiver:

- 0.03 - 60.0 MHz,
- 142 - 152 MHz
- 420 - 450 MHz
- 1240 - 1300 MHz with the optional UT-20

Sub receiver:

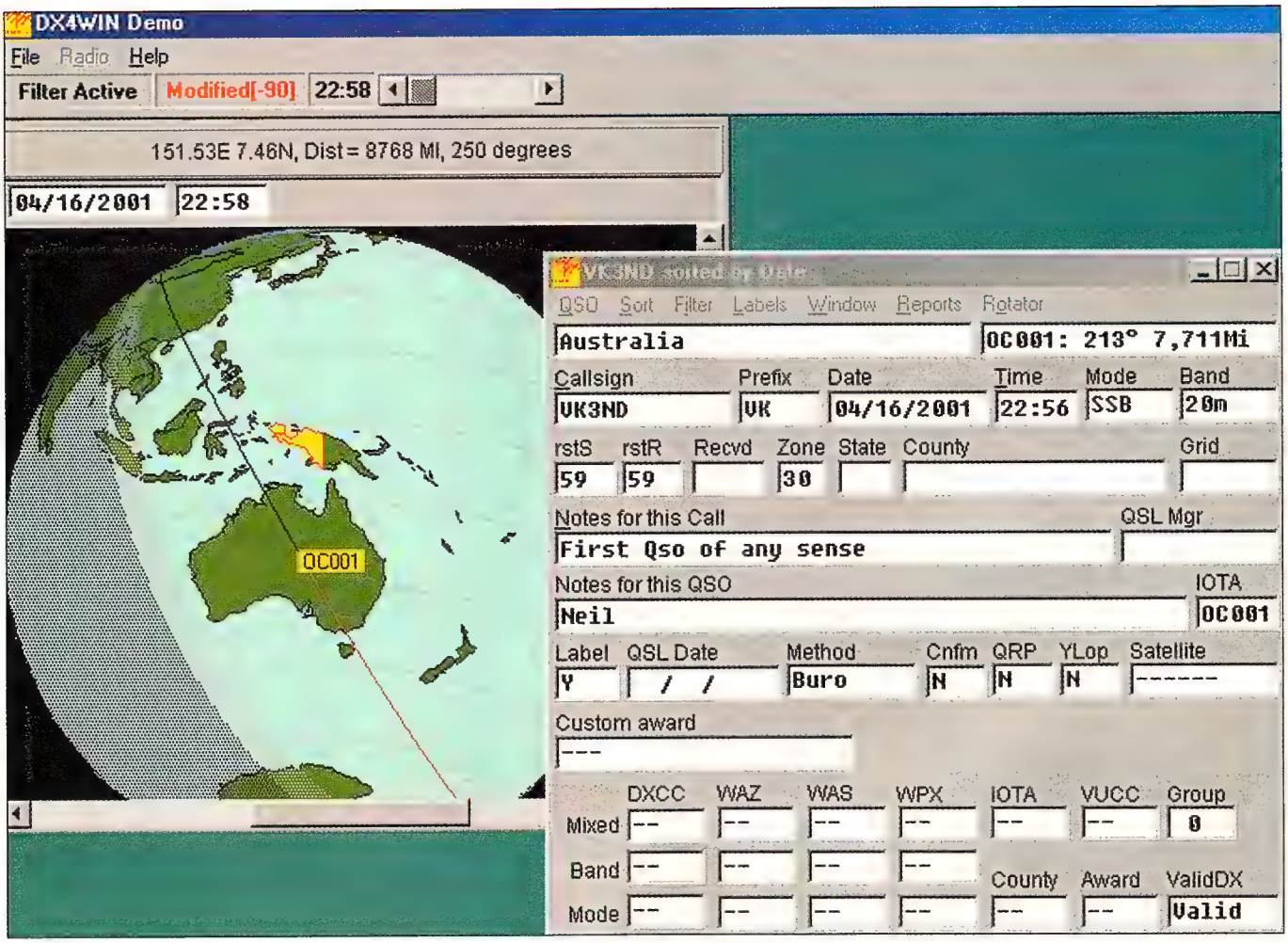
- 118 - 174 MHz
- 220 - 512 MHz
- Notch filter attenuation (at 1 kHz): 30 dB or more
- Beat cancel attenuation (at 1 kHz): 40 dB or more
- RIT shift frequency range: ±20.0 kHz (An extensive list of sensitivities, selectivity and squelch figures is available from the Kenwood Website)

Key options:

- UT- 20: 1.2GHz Tuning module
- VS - 3: Voice Synthesizer
- DRU - 3A: Digital Recording Unit
- ARCP-2000 Radio control software.

Neil Duncan, VK3ND, asks...

IS THIS THE BEST LOGGING PROGRAM YET?



What exactly is a logging program? Is it (a) a hi-tech way of obtaining wood or (b) a computerised place to store data on 'who you have worked on your radio and when'? Needless to say, this substantial computer program is a very thorough and well-presented version of the latter - plus some little extras tucked away to boot.

Now, I can recall the good old days, when we all had to write down everything that we did, said or thought in amateur radio, in an officially approved log book. I can also recall having the radio inspector visit the shack one day to thoroughly inspect said book.

Yep, I was ticked off for the fact that little bits of info were incompletely listed. Just like other operators of that era, even now I still tend to write down details of whom I have worked on the HF bands and keep it for later.

Such a process can be come quite complex if you want to note the band and the operator's name, and whether you have already sent a QSL card - and so on. Really, a proper filing system is needed.

That was back in the days when computers cost more than a whole amateur radio station, making paper by far the

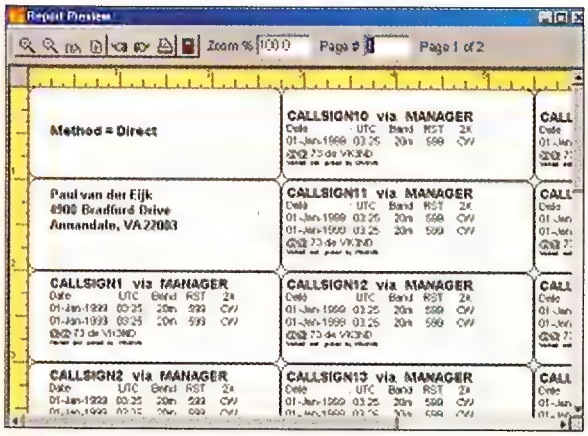
best option for keeping such a 'log' and other information. But, that has all changed now that you can buy a cheap computer for a few hundred dollars, and you can sensibly keep a computer running all day in the shack. For that reason alone, log-keeping tasks are far more easily assigned to the keyboard now. So what software should we choose?

DX4WIN, an excellent Windows program from USA will let you enter and recall almost anything that you could ask for. So, if I type in a call sign and press the appropriate buttons - bingo, it tells me when I last worked the station, on what band, the name of the operator and even where to point the antenna. And what a joy it is to be one up on the other operator! Answer a CQ call with `do you copy Gustav' and you are definitely in!

But wait, there is more. You can ask the program to tell you how many countries you have worked, how close you are to getting that DXCC or 5-band DXCC or WAA or IOTA or any of a multitude of goodies without having to do anything else. It is all so seamlessly programmed and interconnected.

SPIN THE WORLD

I rather like the world map you can bring to the screen. Click a country on that map and it tells you its latitude and longitude - and you can spin the whole world like a tennis ball in a most interesting way. But should you have entered a call sign into the logging program, it draws a line on the map showing you where your rotator should be pointing for that station, which is really nifty.Should you have the necessary interface, the program can even be made to rotate the antenna towards the station you have just recalled. Imagine it: 'I wonder if XY9AB is on today?' Call up the last QSO information, click 'ROTATE' and the beam starts heading their way.Really though, there are just so many opportunities to sit and waste hours of your precious hobby time with DX4WIN. Goodness me, they must have spent some time setting it all up!Try this for example. There is a full interface for your radio, should you want it. Yep, those radio sets with little computer interface sockets sticking out of their real panel can be connected and talked to and controlled by this program. So now, not only can you recall names and frequencies and not only can the computer point the antenna for you - but you can actually tell the radio where to listen!So apart from helping with earning those elusive DX awards an so on, what else is there on offer? What about a little something for the contesters out there?Well, should you be working in a radio contest, DX4WIN will help to see if a new QSO is a duplicate of a previous contact on the same band in the contest and it can maintain and increment a serial number for you to use.



The user can also record when the hoards of QSLs arrive and can search for QSOs that are not yet confirmed. When they are confirmed, you can then duck off to see how far off those awards you are.

DUPLICATED CALLS

Combine that facility with the ability to seek duplications of calls across bands and you can see that this is a very useful little item.There are all kinds of summaries that you can produce, but the main thing for me would be those two key items - duplications and serial numbers.DX4WIN can send CW from the keyboard if you like. There is even a little circuit diagram in the help file telling you how to hook it up for CW, at almost no cost.

MEMORIES, BUFFERS AND MORE...

The CW facility comes complete with memories, buffers and even enables the mouse to be used as a keyer. As a result, you can get the program to send endless CQs, or to call a station that is sitting waiting - but it is not all bells, whistles and magic. You must still do the receiving.

Call sign data can be retrieved from external sources of data such as from the Buckmaster data base on CD ROM, which could be useful for sending out QSL cards, for example. Likewise, the data base manager is useful for recording who is whose QSL manager.

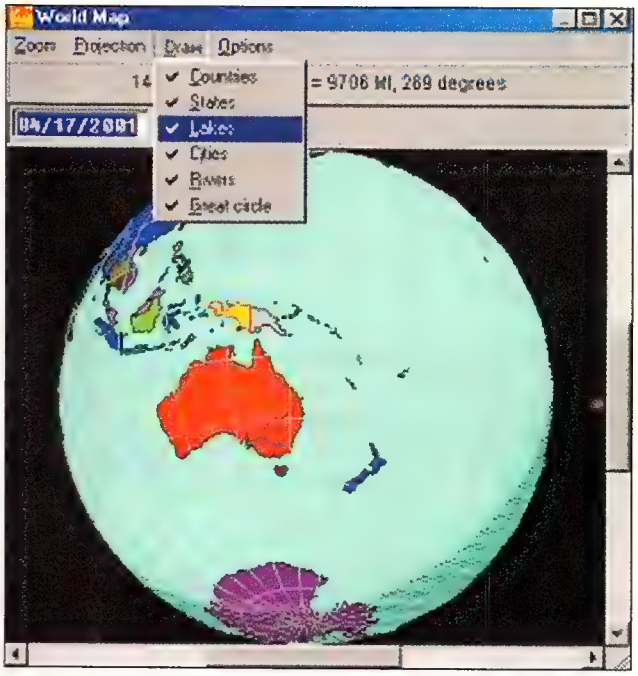
Add to that the ability to make labels for the QSLs that you want to send out (SWLs will find a section devoted to them, too) with 'all popular sizes for labels' being defined and you have another useful clerical facility at your fingertips.

The user can also record when the hoards of QSLs arrive and can search for QSOs that are not yet confirmed. When they are confirmed, you can then duck off to see how far off those awards you are.

Packet and RTTY users will get a little surprise too. This program includes a very good interface for use between your computer and your TNC.

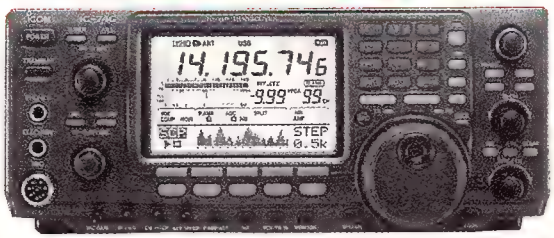
When you are evaluating the cost of DX4WIN, take this little matter into consideration. It is a very good interface too, with very little of the fuss and noise we see with many other programs. The Packet and RTTY window can hold up to 16,000 lines and the Windows 'clipboard' is enabled allowing you to dump some stuff into a word processor, for example.

If you are into voice announcements of DX spots, let the program not only control



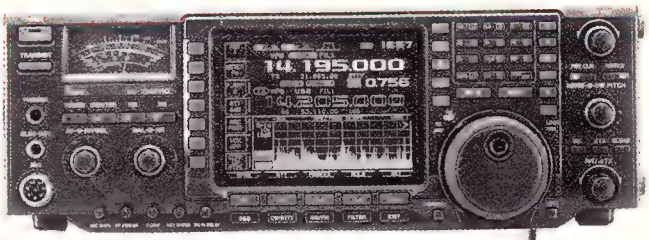
STRICTLY HAM PTY LTD

IC-746



- Your best way to get onto HF plus six and two metres
- Multi-function high resolution display
- Direct frequency entry
- Fabled Icom *work the world* performance
- Great in the shack or can go portable

IC-756 PRO



- Icom's new HF+50MHz digital performance king! Try to see why...
- Fantastic colour multi function screen

TH-D7A h/held

- Dual bander for effortless two metres and 70cm
- *BUILT-IN* Packet Radio TNC! Ideal for use with APRS
- 200 fully alphanumeric memory channels
- Full 6W out from 13.8VDC
- Supplied with NiCd battery and charger
- Nothing else even comes close!

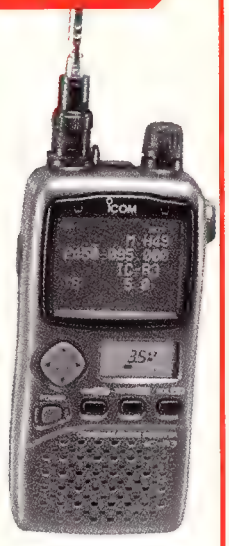
TS-50S

- Solid mobile or base HF rig
- Fabulous Kenwood audio
- Matching optional auto ATU

IC-207H

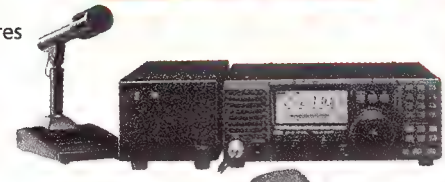
- Affordable dual-bander with no-nonsense Icom quality
- Can be remote-controlled

IC-R3 h/held



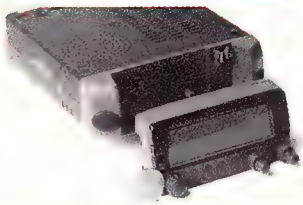
- Meet Icom's fantastic new scanner!
- Huge TFT colour multi function TV screen
- Has high tech Lithium-Ion battery technology
- 450 memory channels
- Covers 0.5 to 2450MHz
- Joystick

IC-718



- Icom's great new HF price leader
- All bands 160-10 metres plus gen cov receive
- 100 effortless watts output on all bands!

TM-V7A



- Stylish Kenwood dual-band 2m & 70cm
- Plug-in 9600 baud TNC convenience
- Can be remote-controlled from the boot

TM-G707A

- Kenwood's latest dual-bander
- Covers two metres and 70cm
- Outstanding Kenwood audio
- Extended receive frequency coverage
- A Kenwood remote-control masterpiece

TS-570S

- Frequency range: 1.8-54MHz, all HF bands plus six metres
- Great heterodyne zapper
- Industry-best DSP *standard*
- Improved model better than ever

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your radio, but also let the DX-spotting Windows program find a clear spot that is closest in frequency to the required one, and then tell you! DX spots can be sorted by time, arrival sequence, frequency and call sign.

I tried the voice bit - it uses the Windows sound card. Not bad I suppose.

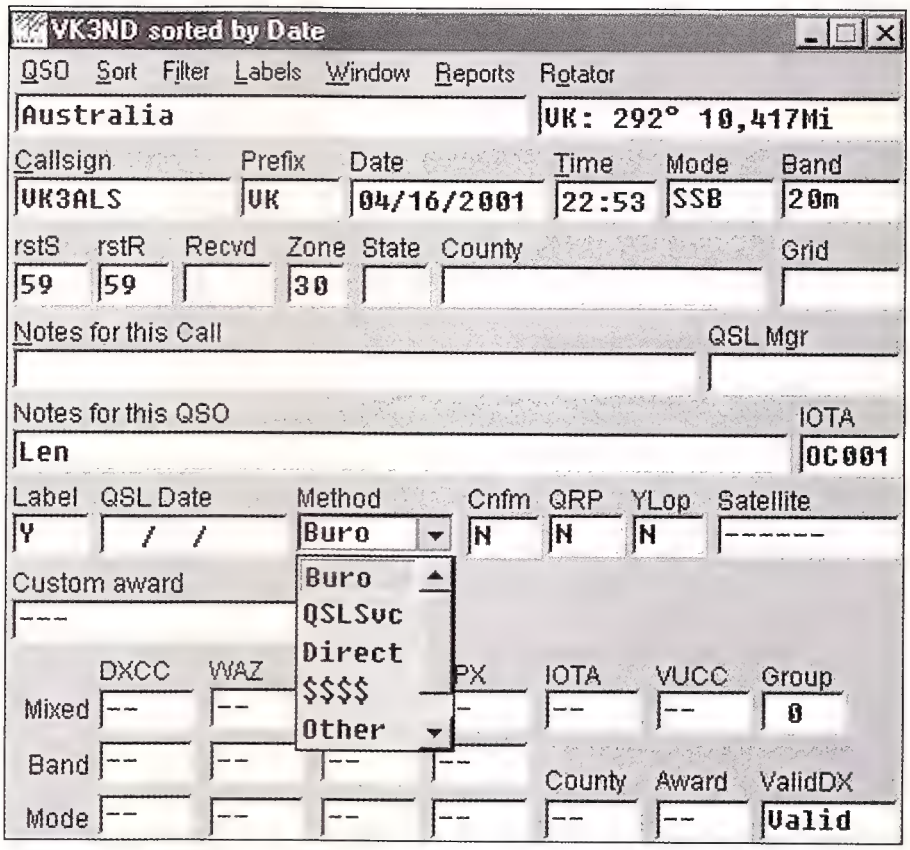
Depending on your computer interface, a 'panorama display' can be organised to show you the S-meter readings over a range of frequencies, centred on a given frequency.

But that World Map screen is the most impressive item. Not only can you graphically show bearing and path from the user's QTH to DX countries, you can ask for propagation details based on user-definable parameters, show shadow and gray lines and get various map projections including the popular great circle. Wow, someone sure worked on that program.

Click a country and it tells you what and where it is. I reckon that map would be good in a geography class at school...

The primary function of DX4WIN is in its role as a QSO data base and there it really shines.

The program stores and retrieves very quickly and does so without any fuss at all. You can save the data for next time in one or many places on your hard disk - and with different file names. File names as might be appropriate for a contest or a particular occasion come to mind.


VK3ND sorted by Date
QSO Sort Filter Labels Window Reports Rotator
Australia
VK: 292° 10,417Mi
Callsign Prefix Date Time Mode Band
VK3ALS VK 04/16/2001 22:53 SSB 20m
rstS rstR Recvd Zone State County Grid
59 59 30
Notes for this Call QSL Mgr
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Baudwalking

SOLAR DISTURBANCES AND AURORA

The biggest sunspot, active region 9393, of the current solar cycle unleashed the most powerful solar flare ever recorded on April 2. The "X20" class eruption blasted a coronal mass ejection into space and triggered a large solar radiation storm around our planet. The partial picture, taken March 29, shows the sunspot, face on, and the full disk picture on the day the CME occurred as the spot rotated off the northwest limb. More pictures are at **http://sohowww.nascom.nasa.gov/hotshots/X17/**.

In late March there were more than two weeks of aurora displays caused by this same sunspot as it crossed the solar disk. A number of Web sites posted spectacular pictures. Have a look:

Jan Curtis's Home of the Northern Lights: **http://climate.gi.alaska.edu/Curtis/aurora/aurora.html**

Aurora Borealis: **http://www.tomeklund.f2s.com/aurora.html**

Auroral Wonders: Photographers Capture the Northern Lights: **http://www.space.com/scienceastronomy/planetearth/aurora_cmepics_010326.html?Enews=y**

Disturbances typically peak at the top of a solar cycle. A sure sign that solar maximum was reached, according to NASA scientists who monitor the Sun, is that our star's awesome magnetic field flipped in January and February. Read the full explanation here: **http://science.nasa.gov/headlines/y2001/ast15feb_1.htm**.

Space.com is producing some interesting stories these past months. We found one titled "Coronal Cannibals: Solar Eruptions Eat Their Own". After the hoo-hah over the TV show Survivor II troubles with the pig and coral reef, we just had to look. It seems that faster-moving CMEs (coronal mass ejections) overtake and devour slower moving CMEs. Read how this works and look at the graphics at **http://www.space.com/scienceastronomy/solarsystem/coronal_cannibalism_010329.html?Enews=y**. NASA Science News also posted a story on this subject at **http://science.nasa.gov/headlines/y2001/ast27mar_1.htm**, and the coronagraph imaging of a June 6, 2000, event is quite amazing.

More disruptions continued into mid-April (as I write this). Check out http://www.spaceweather.com/ for current details.

BROADCASTER NEWS

Radio Exterior de Espana has a new email address for DX and reception reports. Send your reception reports and DX-related letters to **dxree.rne@rtve.es.**

In case you missed it, we found a copy of the Radio New Zealand fax announcing the March 31 closure of New Zealand's National Radio streamed onto the Internet. Copyright paranoia reigns supreme, and listeners lose. I, for one, miss the programming. The daytime 16- and 19-meter frequencies are a bit difficult to hear these days of solar disruptions. Read the disaster at **http://www.awacs.co.nz/radionz/press/rel_16_03_2001.htm.**

Two major disputes have flared up in the United States that could have major implications for the future of Webcasting. The first involves the question of royalties for recorded music streamed on the Internet. The second is about proposed fees being charged by the American Federation Of Radio and Television Artists to advertisers whose commercials are carried on the Web. For a summary of these disputes, and their effects, go to **http://www.rnw.nl/realradio/features/html/webcasting010412.html.**

Radio Pyongyang changed its name to the Voice of Korea last February 16th. There is no Web site, but an SWL club -

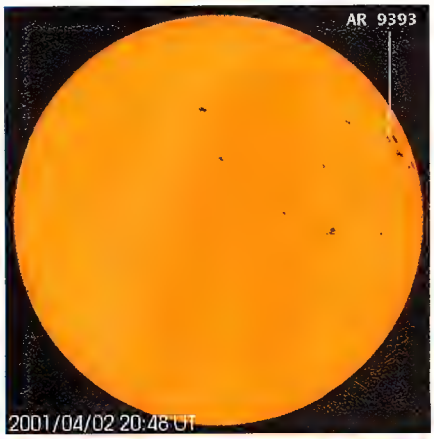
REPEATERS AND THE INTERLINK

In the past few months we've mentioned the world communications available through VHF/UHF amateur radio repeaters linked by the Internet. If you have not read the article do not have a back copy of the magazine, you can find an annotated copy linked as the first item on the page at http://www.w2xq.com/. A problem with the Interlink arose in April, and it has been a devil of a bugger to fix. It seems the Vocaltec owners have agreed to leave the servers on indefinitely, but engineers have also made changes to the data set being sent downstream.

With an unmodified Web browser, the boxes listing the amateurs on the air are instead blue, black or gray and devoid of data. It's a bummer, indeed. A cure for those using a Netscape browser does work, but (at this writing) the Internet Explorer fix does not work. One can still connect to and chat with who ever may in the chat room - it is just that you will not be able to see them.

You can get more information from the Web page at G7WFM: http://free-[illegible]ance.htm.

Yes, there is a misspelling in G7WFM's page name. If you are an experienced Java programmer perhaps you can help by downloading the Java applets from G7WFM and tell us what needs to be done to make the grid boxes once again display the data within Internet Explorer.



lacking a working home page - posted a schedule at **http://www2.starcat.ne.jp/~ndxc/nk.htm.** Unfortunately at this writing it is for the last broadcast season but check now to see if it has been updated.

Do you listen to the Voice of Russia? There is a new set of photos on the VOR web site at **http://www.vor.ru/**. Go to "English" and then click on the section entitled 'Our Narrators' or enter this URL: **http://www.vor.ru/English/Narrators/narrators.html**. It's nice to see the faces behind the voices, and we finally have the correct spelling of names.

BROADCASTING ON THE INTERNET

Hundreds of commercial USA radio stations have shut down or are now shutting down Internet streaming of their broadcasts.

In the USA last year the estimated number of households listening to stations via Webcasting increased to 35 million from 21 million the year before.

The American Federation of Television and Radio Artists, the major union representing the advertisement actors, said the industry is unfairly blaming their dispute with broadcasters for the shutdown.

The union has said the recording industry, which wants to be paid royalties for songs played on the Internet, is a bigger threat to the broadcasters. The union says broadcasters have known for months that they were responsible for paying actors in commercials, and are shutting down to avoid paying record labels and artists.

The AFTRA contract requirements are known to the industry and clearly posted on its Web site.

Four of the nation's biggest commercial radio companies - Clear Channel Communications Inc., Citadel Broadcasting, Emmis Communications and Jefferson Pilot Communications - ended their streaming audio feeds in mid-April. Clear Channel is the world's largest private radio station operator with 1,300 stations.

Kevin Mayer, CEO of Clear Channel's Internet Group, is working to resolve the problems with the union. Additionally, Mayer said his company is working on technology that would remove commercials from Internet streams.

The Record Industry Association of America, which represents record labels, has proposed that Webcasters pay fourtenths of a cent for every song that appears on the Internet and that the fees be retroactive to 1998. Clearly, some smaller broadcasters will be challenged to pay such retroactive fees. And it is not at all clear to us how this may affect the ad-hoc micro-broadcasters Webcasting on live365.com.

The U.S. Copyright office agreed last year that payments are required, and broadcasters are appealing the decision.

Dennis Wharton, senior vice president for the National Association of Broadcasters, said stations believe the license fees they already pay allow them to cover the simulcasts.

Read what Andy Sennitt of Radio Netherlands had to say about the two Webcasting issues by dialing into **http://www.rnw.nl/realradio/features/html/webcasting010412.html**.

These are serious problems for the listening audiences here, and the disease could spread, as everyone wants a piece of the cash cow. Those who listen to National and American League baseball games via the Internet are already at a loss as MLB has sold all game rights to Real(r). The listener must now pay a small annual subscription fee to listen to the games. The hometown station's audio stream goes silent during the game. Early reports, we are told, is that the Real(r) Web site is performing very poorly and the promised extra features - statistics, pitch-by-pitch summaries, etc. - are not working.

USA FCC AMATEUR RADIO LETTERS AT ARRL

From the ARRL Letter V20N14, "Enforcement Letters replace Log: ARRL now posts on its Web site FCC Amateur Radio-related enforcement letters in their entirety in lieu of the periodic "FCC Amateur Radio Enforcement Log." The "FCC Amateur Radio Enforcement Letters" are found at **http://www.arrl.org/news/enforcement_logs/**. Enforcement letters and notices will be posted no sooner than 10 days after the date of each letter or notice released by FCC Special Counsel for Amateur Radio Enforcement Riley Hollingsworth. Direct all questions regarding these communications to FCC Special Counsel Riley Hollingsworth, **rholling@fcc.gov.**" The page is quite plain, ordered by date. Will the Australian authorities follow this practice?

SCANNER RECORDER SOFTWARE

In the newsgroup rec.radio.shortwave, a recent question about what recording software for scanner and shortwave receivers was available brought a flurry of answers. We're partial to ScanCorder (**http://ww.ip.pt/coaa/scancorder.htm**) and TotalRecorder (**http://highcriteria.com/**) but other responses mentioned the following packages:

* Audiocorder (for Macintosh): **http://www.blackcatsystems.com/software/audiocorder.html**

* Rec-All: **http://www.sagebrush.com/recall.htm**

* Scanner Recorder: **http://www.davee.com/scanrec**

We haven't checked out these packages. Your feedback is welcome.

QUICKIES

Are you a world traveller? If your travel time is flexible, why not book yourself into a "event" on your next trip? If you are a radio amateur you know of Dayton, but shortwave listeners have gatherings of the faithful too. The largest is the March event near Philadelphia, Pennsylvania, USA, but there are others in Europe, Mexico and elsewhere. Allen Graham of HCJB's DX Partyline now maintains an events page and links at **http://www.hcjb.org/english/dxpl.php?subject=events.** Take a look and then tweak your travel agenda.

SATELLITE TRACKING

Yet another tracking program, in beta as we send this column off to the editor, looks like it might be quite interesting for the casual observer who wants to see the space objects flying overhead. The software is called "Flyover", featured on a Web site of one Frank Flanagan of Wexford, Ireland. The URL is **http://homepage.eircom.net/~bodyguard/**. He includes a host of additional pages with information and photos of the International Space Station, weather satellites and MIR. Have a look. Flanagan sends the Flyover user off to the author's Web site at **http://www.tomsyl.com/**, where you can see a larger image of the program. It costs just US$5.

RNET, E-MAIL AND OTHER THINGS OF GENERAL INTEREST ***By Thomas R. Sundstrom, W2XQ***

R&C more...

Trellian FTP

We meant to get to a review last month, and missed. In this case we were pleasantly surprised by our lag time, as we found version 2 of Trellian Software's FTP file transfer client program is now shipping.

A true file transfer protocol (FTP) program is usually a better solution to access popular FTP sites for drivers, shareware and software on the Internet. An FTP program does not have the overhead of the browser, and operates more quickly than a Web browser. Small point perhaps, but it is significant when trying gain entrance to some of the busy servers on the Internet.

You can read all about the program at http://www.trellian.com/ftp/index.html. From our perspective, these are the pros and cons of this program compared to others, such as CuteFTP and WS-FTP. Your mileage may vary... but you have a 30-day free trial to wring it out.

Pros. We find Trellian FTP to be a very fast program, in its load time, its connection time and switching screens when compared to CuteFTP. We can't time the differences, but the perception persists over the weeks we've been using the program. We like the drag-and-drop interface and the multi-site simultaneous download connection capability. The compare feature reminds us of Crystal Site Updater (http://www.casdk.com/) that was our savoir in the days of building Web sites with Net Objects' Fusion. Further, the user manual is online, accessible through the user-defined Web browser. There are two advantages: (a) the manual updates by technical support are immediately available to all users and (b) less disk space is required for the program install. And there is an "Upgrade" button to check - whenever you wish - the version of the program against the latest on the Trellian site. If required, FTP will grab, download and install the latest version upon the click of a button.

Cons. From a functional perspective, the program requires the user to select the file type - ASCII or BINARY - when uploading one or files. In our early tests, this proved to be problematic when uploading files with uncommon extentions, e.g., cgi, pl. (We weren't paying attention when uploading a full site.) We'd like to see a third "AUTO" button added to the ASCII and BINARY radio buttons at the bottom of the screen, and the help screens and file updated to reflect. Our second wish is cosmetic. We'd like to see adjustable, rather than fixed, window sizes when scrolling around the two directories.

Trellian FTP costs A$45; upgrades are free.

On balance, this Australian firm in Beaumaris, Victoria, has a quick and easy to use product. From what we've seen from version 1 to 2, this in-country software company is on target and FTP is well worth a looksee. Check out the other products as well. Tune your browser to the Trellian Ltd Website at http://www.trellian.com/. I just think it is so very important to support Australian firms making a go of it in this economy, and why get nicked for the exchange rate?

Baudwalking

The International Listening Guide - a database of international shortwave broadcaster schedules - prepared by Bernd Freiderwald of Germany, has changed domain names again. The new URL is **http://www.ilg-database.de/**. This is the Web address for downloading the summer A01 schedule, only released April 25, almost a month after the broadcast season changed over. But the old domain name **http://www.ilgradio.com/** still exists, as does **http://www.ilgradio.de/**. Ever wonder what country is associated with the two-letter domain at the end of a Web address? We found a quick reference at **http://www.norid.no/domreg.html.** At the page top there is a link to another page with countries in alphabetical order.

Let us know what you've discovered this month. E-mail us at **trs@trsc.com**. Visit us at our Web site **http://www.trsc.com/**. Check out **http://www.w2xq.com/** for our current mobile schedule when you can talk with us via 2 meters and the Internet via the W2ZQ repeater in Trenton, New Jersey.

RAMPING UP THE INTERNET

... an occasional series of hints and tips

Adware and Spyware

There are hundreds of free Windows software programs supported by advertisements displayed on the screen. That's not necessarily a bad thing, but some products also install tracking software that log programs run and actions taken. That information is silently sent back to the company. If privacy is a concern - and some users could care less - there is a Web site that has a large database of "spyware" software and links to software that can remove the offending tracking software. Check out Spychecker at **http://www.spychecker.com** / before you download that next freeware software application.

How to find out more about Web sites

If you use the browser Internet Explorer 5 in Windows, you can find out a good deal about the Web site you are looking at. A free add-on program called "Advanced Properties" adds a 4-tab lookup tool to the context menu:

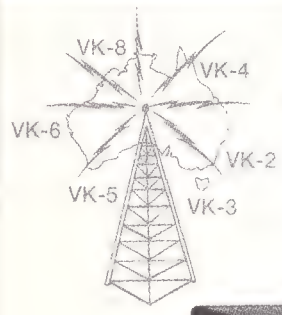
* Whois Information (Details on who owns this domain, what its various servers are, addresses of the company that owns it, etc)
* Reciprocal Links (Pages that link to this web page)
* Similar Pages (Pages that according to Altavista have a similar business or content to the selected page)
* Server Information (Netcraft page that shows what this server is running for software)

The program works by running local requests to a variety of small scripts, passing the URL or location, to Altavista, Google or Netcraft. More details at **http://www.solutions.nu/advprop/**.

Cookies

About a year ago we discussed in this column the invasion of cookies on the PC that can track usage and possibly link personal identification to that usage. One of the Windows software packages that we use to control cookies recently had a significant upgrade - if you use the small, fast Opera browser (which we also like). Kookaburra Software's Cookie Pal is now up to version 1.6b, and is a free download for registered users. Otherwise, the cost is just US$15. We recommend Cookie Pal as one of the easiest and most flexible cookie management programs now available. Dial into **http://www.kburra.com/** for the details.

THE INTERNET, E-MAIL AND OTHER THINGS OF GENERAL INTEREST *By Thomas R. Sundstrom, W2XQ*



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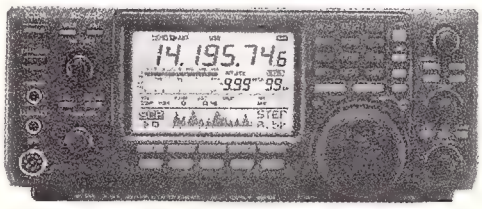

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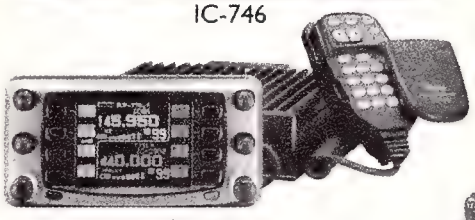
TH-G71A

TH-D7E

VC-H1

AR-8200



IC-2800H

DM-330MV

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TS-50S

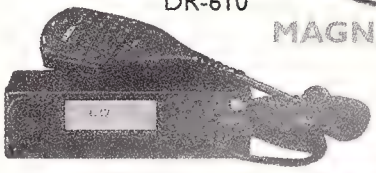
DR-610

MAGNUM

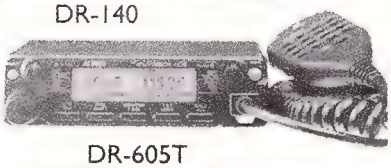
BUTTERNUT

DJ-195

DJ-V5E



DR-140



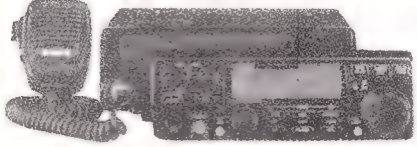
DR-605T

DJ-X10E

DJ-G5

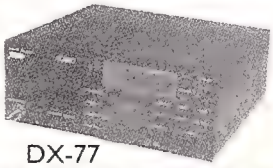
DJ-C5

cushcraft



DX-70TH

JRC



DX-77

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web page: http://users.bytelink.com.au/atrc

Building a Radio Shack in the House

PART TWO: Electricians can be brilliant - and very quick - at this kind of thing, as they have to run wires in tricky situations like this every day.

By **Steve Ireland**, VK6VZ (who has been there and done that)

This is the second (the first part appeared in the May issue) and concluding part of Steve Ireland's "Building a Radio Shack" feature.

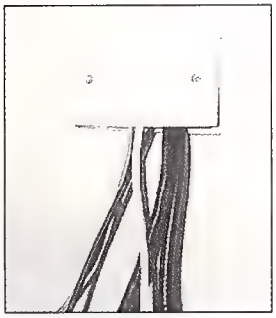
Currently, each outlet/hole has around five antenna/control cables running through into the shack - and there is plenty more room to run more antenna cables through in the future, if I need it (which with my antenna obsession, I surely will).

The antenna cables run from the various antennas crowded across the VK6VZ half acre block onto the roof of the house, to two entry points on the Bristile - tiled roof that are located directly above holes drilled in the shack internal wall. The cables simply feed in under the tiles and descend vertically inside the wall cavity and into the shack. Just perfect!

This miracle was achieved with the help of an electrician, who drilled the holes in the internal wall, fixed the outlet covers in place and put me a 'draw wire' down from the roof above each outlet. Electricians can be brilliant - and very quick - at this kind of thing, as they have to run wires in tricky situations like this every day.

To run my antenna feeders, etc, into the shack, all I had to do was to lift a tile above the desired outlet, attach the first feeder to the draw wire (along with a replacement draw wire) and pull the feeder and the new draw wire through into the shack. This procedure was then repeated, one cable at a time, until I had all the cables I wanted into the shack.

The final replacement draw wire was then secured in place at its top end to a roof beam, right under where I had removed the tile (ready for when I next needed to run a cable through). The tile was then replaced, so it fitted snugly over the feeders (see the photo nearby). In the shack, the shack end of the draw wire was secured to a handy desk leg and the electrical outlet cover screwed partly into place, to deter mice from invading the shack from the roof space/wall cavity/bush outside.



Cable entry into VK6VZ shack with covers in place (partly secured to keep mice out of shack).

Note that it is best to run the feeders into the shack before soldering a PL259 50 ohm coaxial plug onto the cable, to connect to your transmitter/receiver, etc. Trying to pull a cable with a PL259 on the end of it through a small hole in a wall using a draw wire is very difficult and really tempting fate.

It is best to tie the draw wire to the feeder using a clove hitch or similar knot, wrapping 30 - 40cm piece of duct tape in a circular fashion from the feeder cable over the knot and onto the draw wire, to make the cable/draw wire join as smooth as possible and less likely to snag on the brick work as it is pulled through the hole in the wall.

Once the feeder/rotator cables are through the wall, it is simply a matter of soldering the appropriate plugs on the end of them and attaching to the various pieces of equipment/antenna switches.

One thing that I should add is that none of my antennas are left permanently connected to any of the transceivers/ATUs I have, in case of a lightning strike. Every time I leave the shack, my HF antennas are disconnected by unplugging the RG213 coaxial cable that links the HF transceiver/linear amplifier/low pass filter/ATU to my main four-pole rotary coaxial antenna switch, totally isolating them (see photo).

A couple of years ago, my 7 - 28MHz 2-element quad antenna received an indirect lightning strike in broad daylight when I was leaving the house. Although the antenna was damaged - its 14 MHz matching stub melted internally - my radio equipment and the house electrical wiring escaped, owing to the antennas being disconnected. I should add that the lighting strike occurred when the actual thunderstorm from which it emanated was many kilometres away.

Note that I make sure that the disconnected antenna cables lie well away from any of the other cables in the shack, just in case there is a lightning strike and a flashover.

DOWN TO EARTH

Although your electrician should have ensured that the power outlets in your shack are earthed correctly for AC mains purposes, it is worth providing an independent 'RF' earth, just outside the window, so that all the cases of all the transmitting equipment in the shack can be connected together and taken to a common earth stake.

Copper-clad steel-cored earth stakes of around one metre in length can be purchased from electrical equipment suppliers for a few dollars each. My preference is to drive two of these stakes into the ground about half a metre apart and link them with plastic insulated (green/yellow) 7/0.67 mm

Safety first!

The main concern about any radio shack is safety. Every precaution must be taken to ensure that the equipment in it is safe - both for the operator and any 'visitors' to the shack. Every amateur should develop and observe a strict code of safety when handling his/her radio equipment.

All equipment should be switched off and physically disconnected from the AC mains (i.e. the mains lead unplugged) before being handled in any way.

Note that St Johns Ambulance Australia offer a range of first aid courses, which include resuscitation techniques. Contact them for further details on 1300 360 455 or see their web page at: http://www.stjohn.org.au

earthing wire. Note that the stakes should come with a neat brass wire clamp, making it easy to attach a couple of wires to them.

Using 0.5 to 1 m lengths of the same earth wire, each with 6 mm diameter terminals soldered to each end, all the pieces of equipment in each transmitter chain are connected in series (using their earth terminal bolts) and linked to the earth stakes. It is very important that the pieces of equipment are connected in series and not in a loop - equipment producing RF that is earthed in a loop can become unstable and produce RF feedback, potentially damaging it.

Crimp-type terminals - manufactured by companies such as Bosch - also solder well and can be bought from your friendly local hardware store, along with the earthing wire.

In order to keep the main length of wire connecting the earth stakes to the equipment as short as possible, a small hole could be drilled in the outer house wall so that it lines up with the one of the antenna feeder outlet holes that the electrician has drilled in the inner shack (house) wall. Why not get him to drill this hole at the same time?

The 7/0.67 mm wire can then be fed through the holes in the two walls and a 6 mm terminal soldered on the shack end of it, which is then attached to the earth terminal bolt of the first piece of equipment in our series-connected earth chain.

If you are operating from an upstairs room or from a flat, the length of this RF earth lead is likely to be a substantial part of a wavelength long on at least some of the amateur bands you are operating on. In this case, the earth lead may even radiate, resulting in RF coupling into the AC mains and subsequent interference to nearby TV sets. There may also be an RF voltage point at the transmitter end, resulting in an RF burn when you touch the transmitter/SWR bridge/Aerial Tuning Unit cases.

In this case, instead of connecting a conventional earth stake via a length of wire to the cases, you could replace this with a series of quarter wave length wires, one for each frequency band you use, connected in parallel. Any RF hot spots should then disappear, hopefully along with any TVI.

This technique has been used by VK6VZ/G3ZZD many times over the last 30 years, when using upstairs radio shacks, with great success. The radials can be conveniently wound up in a flat loose coil and hidden under a mat.

CHOOSING THE FURNITURE

My radio equipment is currently located in the house office (VK6VZ shack Mark IV), on an old 1.5 m x 0.8 m pine desk I bought many years from a secondhand office equipment supplier. This is topped with a free-standing radio desk shelf, which has been adapted from a design published in the RSGB's Amateur Radio Operating Manual [2]. This is used to support various smaller light pieces of equipment, such as a rotator, SWR bridges, low pass filters, loudspeakers, and a low power VHF transceiver.

On a small wood panel screwed to the left hand side of the radio desk shelf are mounted two rotary coaxial antenna switches - the main HF four-pole switch (similar to an MFJ-1704) and a two-pole switch for my Beverage and Pennant 1.8MHz receive antennas.

My suggestion for buying furniture is to first measure up the area you have available to see what will fit into it. Once you have done this, make a few sketches of the kind of desk/shelving system you would like/that you need to support your current equipment, plus room for expansion. The next step is to visit a couple of the cheaper secondhand office equipment retailers in your area.

In these days of tailor-made computer/office furniture, when a company moves premises it can frequently end up replacing a considerable amount of desks, chairs and shelving. As a result, there is a huge amount of 'used but in very good condition' office furniture available, mostly at very competitive prices, from specialist secondhand stores.

The emphasis in my radio shacks has always been on comfort and I favour old office-type swivel chairs, which can be purchased here in WA from about $25 - $100, depending on condition and quality. Old fashioned wooden office desks can be found in a similar price range, although if you are lucky you can pick sometimes pick up one free, particularly the larger, heavier types. Modern computer workstation type desks are fairly ideal for radio purposes, as they often have a built-in shelf over the main desk area and a hole on the top of the desk surface to allow the routing of AC mains cables. The biggest snag is that they can be relatively expensive and it is sometimes hard to buy one that will fit into the available space.

Small office tables used for mounting bulky office equipment such as printers and faxs at desktop height are useful. VK6VZ has one on which stands the shack printer and loudspeaker. Incidentally, the latter is from an old defunct Pye hi-fi system - why pay $100 or more for a communications loudspeaker when it is easy to purchase a good hi-fi from a secondhand store or junk sale?

Another useful piece of equipment is a second hand office desk lamp - perfect for illuminating radio equipment/log books, etc. I like my shacks to be light and bright.

Always situate your radio shack in a place where there is plenty of ventilation - radio equipment can get pretty hot on an Australian midsummer's day and half-cook itself and the operator.

WALL PAPER

Depending on available space, it is nice to brighten up the shack with useful maps. Perhaps the most useful map for an HF operator is a Great Circle map of the world that is centred on your own particular state.

Great Circle maps are centred on one particular location and give the true bearing and distance of any place in the world relative this location, ideal for use with a beam antenna.

When used in combination with a compass, Great Circle maps are very useful when stringing up wire antennas, or moving to a new location - you can always check in which directions that your signal has to leave the QTH to reach its desired destinations and orientate the antenna correctly/see whether there is a large hill in the way!

The more familiar world map of the Mercator type, labelled with radio prefixes as well as names of the various countries, is also great to have in your shack. Some of the companies that make radio transceivers will often throw in one of these types of maps for free when you purchase one of their HF transceivers.

I have both Great Circle and Mercator world maps in the VK6VZ shack, which have been laminated at a specialist map shop and hung on the wall using plastic clip-on edging available from poster shops, for a professional look.

Another popular method of shack decoration is to display certificates for the various awards that are available to radio amateurs, or that result from successful participation in contests.

On pride of place on the VK6VZ shack walls are my DXCC, Worked All [US] States and Worked All Zones certificates that I have achieved on the 1.8MHz band. - all mounted in cheap but handsome wooden frames bought from photographic stores or stores such as Target and K-mart.

Rather than hang each certificate from a separate hook/anchor bolt, I drill a hole in the wall at the highest point where a certificate can be mounted and push in a small-diameter plastic-sheathed anchor screw that is a tight fit.

I then hang several framed certificates off the anchor, underneath each other in a straight line, using lengths of 5kg or similar clear fishing line.

CONCLUSIONS

I hope this has given you some ideas about making a comfortable and relatively safe radio shack. Remember, try not to isolate yourself too much from your family when you are operating, so as to make your radio activities as much as part as possible as to what goes on in general in the house. That being said, if you have young children, make sure for safety reasons that they cannot access your equipment, particularly when you are not in the house.

Enjoy your radio operating - safely and happily.

(c) Steve Ireland, VK6VZ, February 2001

REFERENCES

[1] This idea originally came from Dick Halls, G3EIW, and was featured in Amateur Radio Techniques (fifth edition), published by the Radio Society of Great Britain in 1974.

[2] Page 10, Amateur Radio Operating Manual (second edition), edited by R.J. Eckersley G4FTJ, published by the RSGB in 1982.

[3] These maps are often available from your local ham radio store or can be ordered from places such as the RSGB One-Stop Shop at: http://www.rsgb.org/shop

John Batty tells of a pirate gone legit.....

LASER HOT HITS

For two years, Laser Hot Hits hopped around the FM band in London, trying to stay one step ahead of the DTI (Department of Trade and Industry) and their detector units, while on shortwave, too, frequencies and transmitter locations changed and multiplied.

If you're anything like me, you like to have a radio on in the background when you're doing other stuff, like working at the computer, as I am now. Of all the stations available to you there are probably a small percentage of stations you make a point of tuning to.

Since the advent of the Internet, there are an increasing number of stations, varying in size and credibility from the BBC to little Jimmy Sparks on his bedroom PC, Webcasting to the world on the Internet.

The other morning, Radio National, 4JJJ, ABC Classic FM and my local AM/FM stations (one each) had succeeded in boring the hair off me (no mean feat) by 0800. Despondently wondering what to listen to, I began opening e-mail.

From reader Len W, who must be our DX-est reader since he lives in Cornwall, UK, came a note that Laser Hot Hits International, a quite well-known 1990's London FM pirate turned shortwave pirate, has a Website I might like to check out: http://www.geocities.com/SunsetStrip/Towers/7201/home.htm

I checked it out, and came across what seems to be an exceptionally well-done hybrid between international broadcasting, Internet Webcasting and a listener-funded and listener-directed business model.

I found myself listening to Laser Hot Hits for the entire day; I'm a convert, a new fan and will be tuning in often, on shortwave if I can, and certainly via the Web.

A BRIEF HISTORY OF LASER HOT HITS

Laser Hot Hits was born when a group of radio enthusiasts, sitting around in London discussing the radio scene, looked at both the licensed and the pirate stations around them and so began callsign-we can do better-callsign. The first broadcast, on 105.6 MHz FM, rocked London on May 23,1993. Almost like a gestation period, nine months of weekend FM broadcasts later, on the February 13, Laser Hot Hits also appeared in the shortwave band on 6220 kHz.

For two years, Laser Hot Hits hopped

around the FM band in London, trying to stay one step ahead of the DTI (Department of Trade and Industry) and its detector units, while on shortwave, too, frequencies and transmitter locations changed and multiplied. On 7 December 1996, the London station finally lost the battle with the DTI, succumbing to a final raid. The local London FM service was dead, so Laser Hot Hits concentrated instead on the shortwave service.

These days, with three regular shortwave frequencies, they use a transmitter power of 200 watts on 6220 kHz, 50 watts on 3935 kHz and 50 watts on 7460 kHz, using all of the frequencies, at different times, to broadcast to Europe from transmitters in France, Norway and Holland. Yes, I know, that makes them a difficult catch from Australasia - but it's been done before, and propagation conditions are generally good at the moment. To make it easier to catch one of their frequencies, they have relays in Ireland (Jolly Roger Radio relays them a lot on [European] Sundays), Holland, USA, Chile and Argentina. Future plans are to increase power on the shortwave outlets.

The station is financed mainly from the pockets of the original group of enthusiasts who created it, and is totally non-profit. For a pirate station they are extremely contactable, and each show includes full contact details, which are:

By phone (07010 716220 - a British number; from Australia it would be 0011 44 7010 716220).

By normal mail: PO Box 293, Merlin, Ontario NOP 1WO, Canada

By email: laserhothits@hotmail.com or hothits@radiolink.net

The level of involvement of listeners to the station, and the feedback to those listeners, is great. To help support the station, anyone can sponsor a one-hour program for five pounds Sterling.

And it's not just any program, but a personalised show. Each of the DJs presenting the shows have their own style of music and presentation; pick which best suits your tastes and suggest a play list. Bung them a fiver, and you'll get regular name checks throughout the program, a selection of music of your choice, and a taped copy of your studio-recorded sponsored program.

Along with the tape you will receive a schedule of when your show will be broadcast, via Laser Hot Hits worldwide shortwave outlets; sponsored shows are broadcast numerous times for several weeks.

The shows these guys present are top quality, worthy of any FM music station you'd care to name. They are professionally prepared, typically using an equipment mix such as AKG microphones and headphones, Citronics record decks, Goodmans and Sony CD players, Teac and Fostex tape machines, and Sony Minidisk recorders. Programs are recorded via an Optimod processor, and the sound quality, even the streaming RealAudio shows, is superb.

I don't know what the guys in the DJ lineup do for a crust when they're not doing shows for Laser, but if they're not full-time DJs somewhere, their talents are wasted. They are real people - as opposed to your standard-issue, plastic FM jock. Each has their personalities, skills and tastes.

The shows are about the music content,

with a smattering of worthwhile comment. It's also not unusual, on any show, to hear an air check in Dutch, or a station ID in German or Swedish, reflecting the international audience.

Mixed in with the shows you'll hear greetings to listeners who've contacted the station from Europe and the USA, with the occasional Aussie or New Zealander. Maybe you. In no particular order, the presenters are: Colin Dixon, who by general consensus is the chief Anorak of the station. Brief digression - what's an Anorak?. Back in the dark ages of the 1960s, when pirate ships broadcast from the 'oggin, transmitter-ship crews were ever-watchful for small tender-boats approaching. Quite often, these boats carried Post Office/DTI (read ACA/FCC equivalent) agents, on their way to raid the ships and shut them down. Sometimes, however, they bore pirate radio enthusiasts and/or supply crews, coming out to the ship on tours, visits and supply runs. Invariably, these enthusiasts would wear typically English foul-weather gear - the universal anorak, a kind of weatherproof, hooded jacket of Arctic background.

The lookouts on the ships, seeing these boats approaching, would scrutinise them through binoculars, looking at the clothing of the occupants, and once they saw no uniforms, and the clothing worn, would reassure the crew that callsign-It's OK, it's a boatload of Anoraks-callsign.

In the 40-odd years since those days, the term callsign-Anorak-callsign has come to mean anyone with enthusiasm for what other people see as being boring, solitary or unfashionable interests. For example, shortwave listening, model railways, bird watching. Anorak in this sense predates geek by nearly half a century.)

To continue ... Colin presents the Anorak Hour, a show in which you'll hear recordings of classic Radio Caroline, Big L, Laser 558, Radio Jackie, Radio Nordzee International and many other pirate stations.

Sponsor a show with Colin at the helm - he's keen to hear if you have recordings of former pirate stations which he could feature in Anorak Hour.

Not only will you get your own personalised program, but also Laser Hot Hits freebies if you are able to contribute to the show. Colin also plays material from new artists. When he's not behind the microphone, he's sitting on top of the antenna tower, either practicing his technical wizardry on feedlines, or using it as a vantage point for his bird and train-spotting. E-mail anorakhour@radiolink.net, or e-mail Colin directly: colindixon@radiolink.net

Stuart Ross is one of the Euro-beat and Euro-rock gurus, and also creates most of the voice-overs and jingles for Laser. As such, he doesn't often produce a show ... but when he does it rocks. Eddy and Johnny, as you may surmise by their names, are the Kings of Retro Rock on Laser. Rock 'n Roll, rockabilly, rhythm and blues, classic 60's and 70's tracks form their play lists, and there's a new show from them monthly. Contact them on jukejoint@radiolink.net

Austin Powers look-alike and groupie Tony James primarily plays classic '60s and '70s, but you never know what you'll hear. I'm into '60s and some '70s music (although I don't resemble Austin Powers - much), but listening to his show I heard excellent tracks I'd never heard before.

It pays to remember that Laser Hot Hits broadcasts primarily into Europe, and plays a lot of Euro tracks which don't ever make it to this side of the world except in the import racks. For requests, dedications, or to sponsor a show, contact Tony at tonyjames@radiolink.net

If you're a dance/club scene musician, Martin Scott will be happy to check out your demo disc/minidisk. If he thinks it's good, he'll broadcast it on Laser Hot Hits. He's

the dance anthem guru. For requests, dedications or to sponsor a show, e-mail Martin c/o: hothits@radiolink.net

Lee Richards was one of the callsign-old-guard-callsign originals from Laser Hot Hits FM, London. He will take requests, dedications and his shows can be sponsored. Write to Lee, c/o: laserhothits@hotmail.com

The first time I listened to a show by Chris Williams the poor guy had been just released from hospital after being hit by a tram in Stockholm, where he lives with his pet ferret Dr Sven.

Chris is a DJ by both night and day; when he's not spinning them for Laser, he works at a community radio station in southern Sweden. You certainly won't be bored by his music; he presents callsign-The Williams Wall of Sound-callsign, callsign-EuroBeat-callsign and callsign-Chris's Classic Hits-callsign on Laser Hot Hits, with European music ranging from German techno and ambient through to classic rock and today's chart toppers.

Chris can also be heard on Ireland's Jolly Roger Radio on 6239 kHz. Chris's programs are also available, free of charge, for re-broadcast on your radio station. Chris is also on the lookout for e-mail penfriends. Write to Chris at: chrisw@radiolink.net or laserstockholm@yahoo.se

Nigel James is the soldering-iron-waver of the group, reputed to be one of those electronics construction people able to build a Matter Transfer Machine with Laser Light Show out of any broken toasters and alarm clocks he can find. Sometimes they take the soldering iron from him and get him to play some music; his tastes are diverse and eclectic, anything from classic gold through to dance. Write to Nigel at: hothits@radiolink.net

Mike Andrews is happy to take requests, dedications and ideas for shows; his twin fortes are true classic tracks and today's best hits, and as usual you can sponsor an hour show. Write to him at: hothits@radiolink.net. Last, but by no means least, is Chris Mitchell. Chris loves to play classic rock, 70s and 80s sounds and current AOR, as well as current chart sounds. During his shows he'll discuss current shortwave conditions and news, and say 'hi' to listeners who've been in touch with the station. A new program goes out every month.

Contact Chris for the usual requests, dedications or to sponsor a show at chrismitchell@radiolink.net

THE LASER HOT HITS MAIL ROOM!

You will have noticed that this European station has a Canadian snail-mail address. Octogenarians and long-time Laser Hot Hits enthusiasts Arnie & Ernie man the mail-drop and are happy to take reception reports for the station; a QSL is guaranteed. Normal snail-mail for any DJs can go through this address too, and hour-long recorded shows on tape or minidisk are available from your favorite Laser Hot Hits DJ for £3 sterling or US$5. The address is Laser Hot Hits International, PO Box 293, Merlin, Ontario NOP 1WO, Canada.

Finally, Webmaster and callsign-dedicated digital designer-callsign, Duncan, runs the computer callsign-public face-callsign of LHHI, their Website is at: http://www.geocities.com/SunsetStrip/Towers/7201/home.htm

It's a well-designed and fully functional website with many features; you can listen to RealAudio streaming one-hour shows from each DJ, and decide which you prefer. I was amazed at the polish and quality of the shows, as well as the fresh breeze of having some new and excellent music mixed in with classics. I'm told that more server space has been negotiated, and if enough people ask, Duncan the Webmaster will upload more pre-recorded, streaming audio shows.

I'll be sponsoring a show without a doubt. If you contact them, tell them where you heard about them; meanwhile, I'll keep trying to get a relay stations aiming its antennae this way. Rock on, Laser Hot Hits, callsign-more power from the tower!-callsign.

Martin Luther, VK5GN. continues his proposal to move....

THE WIA INTO THE 21st CENTURY

FIVE BASIC PRINCIPLES ON WHICH CHANGE IN THE WIA SHOULD BE BASED

Since I wrote my original paper on reforming the WIA I have had interesting discussions with many radio amateurs regarding the proposed organisation.

In the course of these debates it has become clear that there are a few basic principles which underlie everything we are trying to achieve. We may argue about this or that detail. We may argue about why and how we arrived at our present state.

However, for those of us who believe there is a better way then these fundamental principles seem to provide a good starting point.

MEMBERS TO "OWN" THE ORGANISATION

The essence of most re-organisations lies in getting responsibility, authority and power (with accountability) aligned so as to achieve the goals of the organisation.

The Federal/National office holders must have the power and authority to carry out their responsibilities. They do not have that at present and any change to the present organisation that does not correct the situation will fail, and will be seen by members as merely "window dressing".

All power comes from the members. In the present organisation that power has been taken by the state divisions and wielded in a way that still holds the federal executive responsible but denies them the authority and power to carry out that responsibility. The crude way in which the power derived from a large grouping of members in VK2 and VK3 has been used with threats of withdrawal and legal action is only the gross surface evidence of a deep rooted failure in the structure of the present organisation.

That is a grand way of saying that without the members becoming the owners of the Federal/National body and voting directly for their representatives and officers there will be no real change.

In that way the Federal/National officers take their power directly from the members. They will answer to the membership not a small elite of divisional officers. Once elected they will have the authority and power to carry out their responsibilities. They will be seen by the membership at large as responsible and accountable.

THE CHANGE MUST BE "SIGNIFICANT"

Over the past few decades attempts have been made to dress up the present organisational structure as relevant and effective. They have all failed to convince the membership and amateur radio operators at large. Membership has continued to decline.

Those failures now make it imperative that the change carried out now is seen as a major change in direction.

It should be a complete break from the past.

If it is not, if all that happens is a minor re- adjustment, then it will fail to motivate the Amateur Radio operators of Australia to give their support to a reinvigorated WIA.

Services are important but, in general, do not motivate people to join.

The WIA has sold itself for many years on the provision of services, magazine, QSL bureaus, in some states repeaters, in some states packet networks etc. The officers of the WIA, including myself, have been consistently frustrated by the apparent indifference to our efforts.

Members say they are important but despite this there appears to be no correlation between more and better services and increased membership percentages.

I have now formed the view that services for the WIA are like management hygiene factors. An absence of services will cause people to leave. However, many good services will not cause people to join or stay!

There must be other significant factors at work causing people to join, leave or stay.

PUT AMATEUR RADIO BACK INTO THE WIA

My thanks to many correspondents and also members attending the March VK5 WIA general meeting for helping to focus ideas in this area.

The glue that holds us together is amateur radio. Without amateur radio there would be no WIA and no need for the WIA. Yet the WIA as an organisation seems to have forgotten this.

I alluded to this in my original paper

when I spoke about the movement of Amateur Radio meetings and activities from the WIA divisional meetings to the local radio club and the changing character of the WIA that resulted. I am now convinced this has gone too far into concentration on administration or what has been described to me as "the business of amateur radio". Look through the minutes of WIA meetings from the national convention on down and they are all about administration. What happened to Amateur Radio?

The focus of the WIA should be on radio, supported by competent administration. Administration such as budgets, accounts, constitutions etc are merely tools we use to achieve the goals of our organisation. There are some, at the most influential levels in the WIA, who have made these things into holy writ to an extent that the admin tail seems to have been wagging the amateur radio dog.

As this debate has progressed I have become more certain that we should replace our state level of administration with a set of technical committees or interest groups operating on the national level. They can foster their part of the hobby, involve newcomers in it as well as publicising new activities, modes and processes.

The new organisation should be taken as a way to streamline and make easier the work of the many volunteers in our hobby. That also means keeping the formal structures, processes and administration to an essential minimum. As well as making sure members have clearly defined lines of communications into the organisation.

The WIA must also be seen to be optimistic about the future of Amateur Radio and fostering the spirit of excitement about new things.

We should put Amateur Radio first. Once we have decided what we should do then we can look at how it can or should be administered. Changes that may be required to budgets, accounts, or constitutions can then be worked out and recommended by the executive.

I cannot state this strongly enough. We must decide what is best for our hobby. Then, and only then, should we consider the needs of business administration.

THE WIA SHOULD BE AN OPEN ORGANISATION

The members "own" the organisation and have a right to be involved in its processes. There should be clear avenues for members to send and receive information on anything happening in the WIA.

> "The WIA has sold itself for many years on the provision of services, magazine, QSL bureaus, in some states repeaters, in some states packet networks etc. The officers of the WIA, including myself, have been consistently frustrated by the apparent indifference to our efforts"

The past years have tended more and more to secrecy and confidentiality. There is no need; the need is the opposite. Inclusion and consultation should be the way of doing business in a members based organisation.. The members need to feel that their views are taken note of and acted upon where appropriate.

Commercial in confidence stuff applies to a couple of things the organisation does. Like negotiating conditions with staff, or letting a contract. Even in these areas there is room for consultation prior to negotiations.

Two or three people acting on their own should never take very significant decisions behind closed doors.

Debates on important topics in radio should be held in the widest possible forums. Mechanisms for excellence in WIA communication should be determined as part of the creation of the new organisation

CONCLUSION

None of these principles is, by itself, sufficient to stem the decline of the WIA. Accepted as a package and then implemented through a new steamlined and responsive organisation will, I am sure, lead to a better future for both the WIA and Amateur Radio in Australia.

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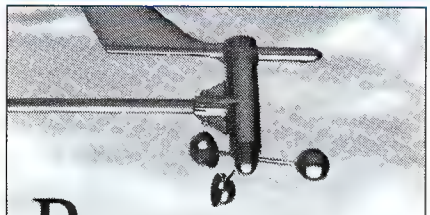

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THE 50MHz DX Reflector

By **Jack Haden** VK2GJH (Email vk2gjh@usa.net)

There's no doubt about it, what a bumper DX season it's been, especially across to Central America and the Caribbean. Even the path to North America has yielded the odd surprise or too, especially to Canada with VE7 being worked in the southern states of Australia, not to be confused with VE4CW/W6 worked by many whilst portable in California.

The deserving picked up many new countries as a result; the next step is chasing up the much-needed QSL card to put the icing on the cake. Mellish Reef, Midway Island, Easter Island and Rotuma Island kept everyone busy with some frenzied DXpedition activity. Contacts between VK to JA/HL/KH6 have been omitted from the DX Log Book to save space.

Odds & ends

Silent Key... Leon VK2FLI

One of the grand gentlemen of the 50MHz DX scene in Sydney has sadly called it a day. Leon McHugh, VK2FLI of Rooty Hill passed away in his sleep on Mon 09th April after a long period of illness. A keen 50MHz DXer of many years standing, Leon was a keen home-brew enthusiast and made many a VHF linear amplifier. Another pet project that Leon pursued was his famed "quagi" antenna, a subject of debate on many a night void of DX. Always the gentleman on air and ever ready to offer assistance to others in need, Leon was no doubt one of the best ambassadors we had on amateur radio. I cannot pass without saying that Leon will be deeply missed by his many radio friends, both here in Australia, and around the world.

What a month!

It may have had its ups and downs but April was a very good month for six metres DX. On April 02 Andrew VK8AH (PH-57) worked **A45ZN** (LL-93) in Oman. Steve VK3OT (QF-12) set the cat amongst the pigeons with his April 03rd 2214z contact with **V29JKV** (FK-97) in Antigua & Barbuda. Excitement flared with suggestion that this contact may have been a distance record (16,750-km), however, after examining the details it was not to be. Adam VK4CP (QG-62) worked **LU8MB** (FF-57) in Argentina via the long path at 1432z on 03rd April through a brief window that only lasted a few minutes.

Norm VK2ZXC (QF-55) nearly bagged a complete contact with **CX1DDO** (GF-15) in Uruguay at 0013z on 08th April. I say nearly, because Norm, being the gentleman that he is will not claim the contact as local line noise prevented him from recording his signal report given by CX1DDO, a great pity. Not to be out done Andrew VK8AH (PH-57) and Mark VK8MS (PH-57) worked **7Z1SJ** (LL-25) in Saudi Arabia at 1017z on the 10th April, a possible first VK to Saudi contact on six?

VK6RO makes 50!

Graham VK6RO (OF-77) in Perth worked his 50th country on 07th April with a contact to **UK9AA.** Graham says: "*Country number 50 comes after 22 years on 50MHz, listening everyday, even at the rock bottom side of the cycle!*" Graham also mentions that Don VK6HK has kept a record of DX worked/heard in Perth for the last 45 years or so. The maximum number heard/worked in Perth is 79 countries.

Ascension Island (II-22)

The beacon on Ascension, operating on 50.031MHz, has received some much needed repair work during April. Johnny ZD8KW and Lenny ZD8LJD installed a new Cushcraft Ringo Ranger vertical antenna; they also conducted some other maintenance at the site. The new antenna was donated by Nevada Communications in Great Britain.

Bahamas (FL-24)

There will be some special activity directed to 50MHz with **C6A/W3EP** (FL-24) active May 23rd through to 01st June. Additional VHF activity will also be conducted on 144MHz, not that it matters in VK!

Cayman Islands (EK-99)

It may be a little too late for 50MHz VK/ZL DXers who will be in winter hibernation mode during June. However, **K4BI** and **W4WA** will be active as **ZF2MU** in the period 06-13th June.

East Malaysia (OJ-85)

Peter 9M6BAA (OJ-85) worked nearly all states of VK (except VK7) during his March stint from Keningau, East Malaysia. Big signals were reported from VK4, 6 and 8 with added bonuses being ZL3TY plus VK9C and VK9X. QSL to G4SHF.

Fernando De Noronha (HI-36)

I don't like our chances in Australia at cracking this one, then again one never knows? Dennis K7BV will be active May 24th to 01st June. The callsign is yet to be announced, six-metre activity has been promised. Check out his web site at *http://www.qth.com/k7bv/PY0F* for further news.

Galapagos (EI-59)

Visiting American 50MHz DXer **N0JK** will be active as **HC8N** (EI-59) from May 23rd through to the 28th. Particular attention will be directed towards 50MHz with liaison conducted on 28.885MHz.

Jamaica (FK-18)

Four Americans will be active from Jamaica in the period 20-29th May with emphasis on 50MHz. The team, consisting of **N6BT, KE7X, N6XG**, and **K2KW** will use the special callsign **6Y1A** only on the 26th and 27th of May. All other times they will operate using their home calls oblique 6Y5. You can visit their web site at *http://www.k2kw.com* for the latest news.

Mariana Islands (QK-25)

Visiting JA DXer **JA8CCL** will be operating as **KH0/JA8CCL** from Saipan June 08-11th. QSL to the home call, via the bureau or direct.

Mellish Reef (QH-72)

The **VK9ML** team had a great time on six during their brief stay. All JA prefixes were worked plus 4K4, BV, DU, FK8, HL, HP, KH6, KH8, KL7, P4, TI, V73, VK, W6/5, YC, YS and ZL. There was a total of 96 hours of operating in all. Adam VK4CP has put a lot of work into the web site at *http://www.qsl.net/vk9ml* and well worth visiting.

Mount Grey (QF-45)

Norm VK2ZXC was active during mid April from Mount Grey, near Goulburn in NSW giving many a chance to work grid QF-45vf. On the 18th April at 2100z Norm worked Don **KH8/N5OLS** (AH-45) in American Samoa at 2100z whilst mobile in QF-45. Norm reports working many JA grid chasers on 50MHz whilst conducting work at a commercial antenna site on the mountain.

Temotu H40RW

Ron Wright ZL1AMO reports that he made some 300 contacts on 50MHz during his April visit, most of them to Japan. There was no mention as to whether any VK contacts were made; I am unaware of any being made.

R&C more... ☞

THE 50MHz DX Reflector

VK6RSX/b (OG-89)
The **VK6RSX** beacon is back on air, this time from Dampier (OG-89) so please amend your beacon lists accordingly. It's quite a move to just north of the Tropic of Capricorn from its old home down in Perth (OF-77). The power output remains at 50 watts.

DX Log book...

Disclaimer: Whilst every effort is made to ensure the accuracy of the events reported, it's virtually impossible to verify every snippet of information received. Editorial comment is derived from a number of sources in good faith, and thus is published as such, possibly with some minor errors.

DX grid squares are given where known, all dates/times are in the UTC/GMT format, and WWV indices are given in brackets for each particular day.

Sat 07 Apr (192-15-03) was a bonanza of a day Central America and the Caribbean popping through from 2115z. DX calls worked in VK1, 2, 3, 4 and VK7 include **V31PC** (EK-56), **V31RH** (EK-67), **ZF1DC** (EK-99), **YS1RR** (EK-53), **YS1AG** (EK-53), **XE1J** (DK-89), **HR1BVA** (EK-64), **HR1BY** (EK-64), and **TG9AJR** (EK-44) plus others. Wolf **HR1BY** only runs 08 watts on six, as is mostly active 1830-2330z. The usual JA/V73 path was noted in the afternoon with **V73GOD** (RJ-38) about also working Norm **VK2ZXC** at 0101z. **Tex 9M2TO** (OJ-05) was into Perth working Graham **VK6RO** at 0543z. Graham **VK6RO** worked country number 50 with a contact to **UK9AA** (MN-40) at 0719z 519 report on CW. A VK4 said: *"I wish the DX stations would move off 50.110MHz instead of running mini pile ups, thus congesting things."*

Sun 08 Apr (180-22-04) again delivered the goods with another path to Latin America, the DX reported on the 07th were in again. Grid hunters picked up a new one with **YS1AG** (EK-54) operating portable. Many VK4's worked Willie **T30W** (RJ-61) on Tarawa during the morning, and Ray **V73JK** (RJ-38) was also into VK2. **KH8/N5OLS** (AH-45) and **FO3BM** (BH-52) were about at 2330z. Central America was worked as far south as VK3 and VK7 during the morning. Adam **VK4CP** and others scored Easter Island working **CE0Y/W7XU** (DG-52) around 2355z on CW. Andrew **VK8AH** (PH-57) worked **HK4SAN** (FJ-24) in Colombia. Norm **VK2ZXC** battled with **CX1DDO** (GF-15) in Uruguay at 0013z dispensing a 3x5 report. Tex **9M2TO** (OJ-05) was into VK6 from 0540z. John **VK4FNQ** heard **EY8CQ** (MM-48) 5x1 at 0757z and **VR2XMT** (OL-72) at 0849z 3x1.

Mon 09 Apr (169-33-04) delivered the Latin American delicacies again, plus some USA thrown in for good measure. American calls noted include; **NR3Y** (CM-97) CA, **KD6WW** (CM-90) CA, **K6QG** (CM-98) CA, **W6XI** (DM-42) AZ, **VE4CW/K6** (CM-98) CA, **N6FM** (CM-96) CA, **N6RA** (CM-87) CA, **N6FM** (CM-96) CA, **W6QUV** (CM-98) CA, **W6XI** (DM-42) AZ, **WA6HHQ** (CM-96) CA, **WA6KLK** (CM-89) CA, **WA6PEV** (DM-15) CA, **K7KV** (CN-87) WA, **KB7WW** (CN-85) OR, **W7LTM** (DM-33) AZ, **W7RV** (DM-43) AZ, and **WA7CJO** (DM-43) AZ, **WA7HCE** (DM-44) AZ and **WJ7S** (CN-84) OR plus others. Most attention around 2300z was directed to **VE7XF** (CN-89) in Canada with many VK's in hot pursuit. Ray **VK4BLK** worked **CE0Y/W7XU** (DG-52) at 0001z 559 on CW. Mark **VK8MS** (PH-57) and **4W6UN/b** (PI-21) were audible in Sydney on scatter at 0002z. Inter mingled with this John **VK4FNQ** also heard **HK4SAN** (FJ-24) in Colombia and **FO5RA** (BH-52) at 0049z. Adam **VK4CP** worked **P49MR** (FK-52) in Aruba at 0049z 5x5 on SSB. Fedor **UK9AA** (MN-40) was also worked in Perth and stayed in for around an hour. A VK5 commented: *"I was disgusted to see confirmation of signal reports exchanged between a DX station and a VK take place on the internet, how desperate can some people get?"*

Tue 10 Apr (165-17-03) was somewhat subdued compared to previous days, although **ZL2KT** worked **EH8BPX** (IL-18) in the Canary Islands at 2134z. Andrew **VK8AH** (PH-57) worked **7Z1SJ** (LL-25) at 1017z on SSB.

Wed 11 Apr (170-10-02) had the ZL gang into Central America and the USA from 2145z.

Thu 12 Apr (160-48-02) gave another good day of exotic DX with the Americas in from 2120z. Again eastern VK were into the West Coast and southwest USA, from the Pacific AH8, FO3, T30, FW5 and 3D2/Rotuma were noted. Phil **VK2FHN** bagged **TI5KD** (EJ-79), **TI7WAM** (EK-70), **TI2ALF** (EJ-79), **YS1RR** (EK-53) and **3D2AG/P** (RH-87) from 2143z. Norm **VK2ZXC** had another scoop, this time with **PJ2MI** (FK-52) in Curacao at 2315z. A VK2 said: *"One American was so bloody desperate to get 3D2AG/P in his log that he confirmed his signal report on 28.885MHz, not a good contact at all."*

Fri 13 Apr (149-36-03) was sluggish to start off with interstate sporadic E to keep everyone occupied. Joe **VK4JH** (QH-30) worked **A45XR** (LL-93) in Oman at 1315z on CW, then John **VK4FNQ** had **9M2TO/b** (OJ-05) and **9M2/JI1ETU/b** (OJ-05) at 1345z. From 2145z **3D2AG/P** (RH-87), **FO3BM** (BH-52), **ZK1WL** (BI-11) North Cooks, **KH8/N5OLS** (AH-45), **AH8A** (AH-45) and **FW5ZL** (AH-16) plus Central America were worked in VK1, 2 and 4. Phil **VK2FHN** worked **WH6O** (BL-11) at 0149z 5x9. Meanwhile VK3 and VK5 were treated to some USA and KH6 from 0230z. Norm **VK2ZXC** worked **V73GOD** (RJ-38) at 0415z. At 0440z John **VK4FNQ** heard **YB5QZ** (OJ-00) 599 on CW. Graham **VK6RO** had **9M2TO/b** (OJ-05) 559 report at 0509z.

Sat 14 Apr (137-27-04) didn't show much promise until later in the morning, although earlier Norm **VK2ZXC** worked Tim **V73AT** (RJ-38) at 1320z. The now usual TI2, TG9, YS1, HR1, HP2, YS1, W5, W6, XE1 and XE2 signals were into eastern VK plus 3D2/Rotuma, FK8, VK9N, FW5, P29,

Volker Eschment, DL7AUV, wondering what, if anything, is about to come in on 6m.

AH8 and V73 from the Pacific. John **VK4FNQ** had **YC1MH** (OI-33), **9V1UV** (OJ-11), **HL3IUA** (PM-36), **YB0CBI** (OI-33) and **VR2XMT** (OL-72) from 0222z to 0635z. Graham **VK6RO** worked **9V1UV** (OJ-11) at 0250z 5x8. Around **0555z** Eddie **DU1EV** (PK-04) was briefly into VK2 but faded out quickly. Meanwhile, Graham **VK6RO** bagged **YB5QZ** (OJ-00) at 0751z 579 on CW.

Sun 15 Apr (139-17-04) slowly picked up as the day wore on with **V31PC** (EK-56) briefly into Sydney at 2055z, Phil **VK2FHN** worked **TG9NX** (EK-44) at 0001z. John **VK4FNQ** had TI2, TI5, TG9, XE2, VK9N, FW5, FO3 and N6 from 0002-0332z. Ray **VK4BLK** had **4W6UN/b** (PI-21) from 0026-0045z 419 report. Jim **VK9NS** (RG-30) worked a number of VK4 stations from 0200z. Wally **VK4DO** (QG-49) worked 48 USA stations from 0230-0340z in AZ and CA in 14 different grids. Ray **VK4BLK** bagged **W1VX/KH4** (AL-18) on Midway Island 549 CW report at 1013z. **VK2TEA** said: *"It was hard going but I worked TG9NX on just 10 watts!"*

Mon 16 Apr (134-13-02) the Midway beacon **W1VX/KH4** (AL-18) was heard by John **VK4FNQ** from around 0046z, but he couldn't break through. Andrew **VK8AH** (PH-57) was again amongst the prime DX working **S79Z** (LI-75) in the Seychelles at 0938z on CW, **VQ9NL** (MI-??) in the Chagos at 1524z on CW and finally, **5X1GS** (KJ-60) in Uganda at 1528z on SSB were added to the prize purse.

Tue 17 Apr (123-07-03) was a very quiet day, although John **VK4FNQ** had the usual from JA/HL/KH6/V73 plus **KH2KU** (QK-23) from Guam at 0854z 5x2.

Wed 18 Apr (126-08-03) exhibited nothing of real importance, although XE1 and YS1 were noted in VK3 after the turn of the UTC date. At 0542z Gary **VK2KYP** (QF-56) had 48.250MHz Malaysia TV, then Norm **VK3DUT** (QF-32) reported **4W6UN/b** (PI-21) 539 signal at 0636z. Graham **VK6RO** had **P29BPL/b** (QI-30) at 0617z 529 signal. At 0810z Steve **VK3OT** had Malaysia TV 5x9 plus and at 0816z had reception of **OD5SIX/b** (KM-74) on 50.078MHz very weak, the beacon was gone by 0852z.

Thu 19 Apr (132-26-03) showed improvement with **V31PC** (EK-56), **YS1RR** (EK-53), **ZF1DC** (EK-99) and **KH8/N5OLS** (AH-45) into northern VK2 and most of VK4 from 2230z. John **VK4FNQ** had Guy **FW5ZL** (AH-16) 419 on CW at 2257z. Norm **VK3DUT** (QF-32) heard **YS1RR** (EK-53) 5x5, and **XE1KK/b** (EK-09) 559 around 0011z.

Fri 20 Apr (149-05-03) looked better than previous days with the indices on the rise. Around 2140z **XE1KK/b** (EK-09) was 559 report with **VK2GJH** (QF-56). David **VK2BA** (QF-69) had **YS1RR** (EK-53) at 2218z. Bob **VK2DN** (QF-56) had faint copy on **KH8/N5OLS** (AH-45) on CW at 2248z. John **VK4FNQ** heard **VK9ML** (QH-72) Mellish Reef 5x3 at 2254z and **A35NE** (AG-28) in Tonga 5x5 at 0016z. At 0130z **VK3EK** (QF-32) reported **XE1KK/B** (EK-09) 529 signal. Malaysia TV on 48.250MHz was 5x9 plus into Sydney from 0140z but little heard as the MUF struggled to rise. Over in the west **P29BPL/b** (QI-30) was heard in Perth at 0206z. **WH6O** (BL-11) reported **VK8VF/b** (PH-57) at 0410z and **VK9ML** (QH-72) 5x5 at 0815z. John **VK4FNQ** had **V73E** (RK-11) on Enewetak Atoll 4x1 at 0956z. Andrew **VK8AH** (PH-57) logged **VQ9IO** in the Chagos on CW at 1333z. A VK2 commented: *"All the indicators from Malaysia were there but the MUF failed to rise to the occasion, maybe it was in need of some viagra."*

Sat 21 Apr (180-10-02) gave the Brisbane DXers a brief chance at **VK9ML** (QH-72) at 2025z on CW and again at 2110z on fone, the going was tough but some did make it through. **XE1KK/b** (EK-09) was heard in Sydney around 2155z. **W1VX/KH4** (AL-18) was into most of VK4 from 0303z. Steve **VK3OT** reported **VR2XMT** and **VR2LC** (OL-72) at 0640z. John **VK4FNQ** also noted **T88CL** (PJ-77) at 1240z 5x5, later at 1336z **BV2DP** (PL-05) and **BX2AB** (PL-06) were heard 5x1. John **VK4FNQ** worked Argentina at 1515z with **LU8MB** (FF-57) 5x2. **W1VX/KH4** (AL-18) appeared at 0407z with most of the Wollongong team making it plus Bob **VK2DN.** Norried **H44NC** (QI-81) was into VK4 at 0554z onwards plus a weak **T88YK** (PJ-77) at 0621z.

Sun 22 Apr (191-11-04) didn't show too much promise in the south, however John **VK4FNQ** reported **V73E** (BK-11), **KH8N5OLS** (AH-45), **DU1/GM4COK, 9M2TO/b** (OJ-05) and **DU1EV** (PK-04) from 2328z. Norm **VK3DUT** (QF-32) had **V73SIX/b** (RJ-39) 519 report at 0006z.

Mon 23 Apr (193-24-05) was a reasonably quiet day, although **YS1RR** (EK-53) reported **VK4BLK** (QG-56), **VK4JH** (QH-30) and **VK4DO** (QG-49) from 2251z onwards. **VK9ML** (QH-72) was also into the west coast USA from 2350z. John **VK4FNQ** heard **A45XR** (LL-93) in Oman at 0739z 519 report on CW and **BV4QI** at 0807z 5x9. Bob VK2DN said: *"Don't like our chances with VK9ML, haven't heard a whisper from it here in QF-56."*

Tue 24 Apr (196-22-03) exhibited little activity. **XE1KK/b** (EK-09) was heard in VK2 and VK4 plus the usual to Asia and the Pacific from VK4.

Wed 25 Apr (194-08-02) Lest We Forget. ANZAC Day was rather quiet DX-wise but there were some surprises up north. John **VK4FNQ** worked **ZP4KFX** (GG-??) long path in Paraguay at 1217z 5x3. Then from 1242z **PY5CC** (GG-54) in Brazil worked into VK8 and northern VK4 also long path. **XE1KK/b** (EK-09) was heard in VK2 and VK3 from 2235z.

Thu 26 Apr (194-08-03) displayed subdued conditions, the usual was heard in the north. Many were looking for a rather absent Johnston Island operation by **V73GOD.**

Fri 27 Apr (191-04-02) was reasonably quiet with Norm **VK3DUT** (QF-32) hearing 48.240MHz TV from Malaysia at 0100z, he then heard **9M2TO/b** (OJ-05) 529 report at 0115z. John **VK4FNQ** reported the usual from Asia and the Pacific plus **BX2AB** (PL-06) at 1433z 5x9. **3D2NV/P** (RH-87) from Rotuma was working JA from 0900z.

QSL routes...

5X1GS via WB2YQH, **7Z1SJ** at CBA, **9M2TO** via JA0DMV, **9V1UV** at CBA, **A45XR** at CBA, **AH8A** via AC7DX, **CE0Y/W7XU** via W7XU, **FO3BM** at CBA, **H44NC** at CBA, **HK4SAN** at CBA, **HP2CWB** at CBA, **HR1BVA** NICB, **HR1BY** via EA7FTR, **KH8/N5OLS** via N5JA, **P49MR** via VE3MR, **PJ2MI** via W2CQ, **S79Z** via JA9LSZ, **T30W** at CBA, **TG9NX** via N4FKZ, **TG9SO** at CBA, **TI2CDA** via TI0RC, **TI4DJ** NICB, **TI5BX** via TI4JHQ, **TI5RVV** at CBA, **TI7WAM** at CBA, **UK9AA** at CBA, **V31PC** at CBA, **V31RH** via K5AND, **VE7KF** at CBA, **VK9ML** via VK4APG, **VQ9NL** via W4NML, **W1VX/KH4** via JF1OCQ, **YB0CBI** at CBA, **YC0CBI** at CBA, **YC1MHY** NICB, **ZF1DC** at CBA. NICB = Not In Call Book. A number of other QSL routes, not featured here, appear in the May issue.

50MHz in 2001...

The following DXCC entities, to the best of my knowledge, have been worked in Australia on 50MHz during 2001to date (27th Apr): 3D2/Rot, 5X1, 7Z1, 9V1, 9M2, 9M6, A35, A45, A61, BY, BQ9, BV, CE, CE0Y, CX, DU, EY8, FK8, FO5, FW5, HI8, HK, HL, HP, HR, JA, JY9, KH4, KH6, KH8, KL7, LU, P29, P49, PJ2, PY5, S79, T30, TG9, TI5, UK9, UN3, VE7, V29, V31, V73, VK9M, VK9N, VQ9, VR2, VU2, W/K/N, XE, YB, YS1, ZF1, ZK1 (Nth), ZL and ZP. USA states worked in Australia: AK, AZ, CA, HI, NV, OR, TX and WA.

Conclusion...

Thanks is extended to the following contributors to this months column: Graham VK6RO (OF-77), John VK4FNQ (QG-39), Adam VK4CP (QG-62), Ray VK4BLK (QG-56), Steve VK3OT (QF-12), Phil VK2FHN (QF-55), Vince VK2VC (QF-56), Bob VK2DN (QF-56), Norm VK2ZXC (QF-55), OPDX Newsletter, SMIRK, UKSMG, JA 50MHz Reflector, OZ50MHz DX Bulletin and others. 73's de Jack VK2GJH (QF-56).

Is newer really better?

The question is: "Are the latest, hotshot modern radios better, or are some of the old classics as good as you would ever find?" From Jason Reilly.

I guess the following arguments could be applied to just about anything you care to mention: cars, life in the suburbs, the quality of service you get at the shops and so on. But since this is "Radio and Communications" magazine, I guess I should say something relating to radio.

THE QUESTION.

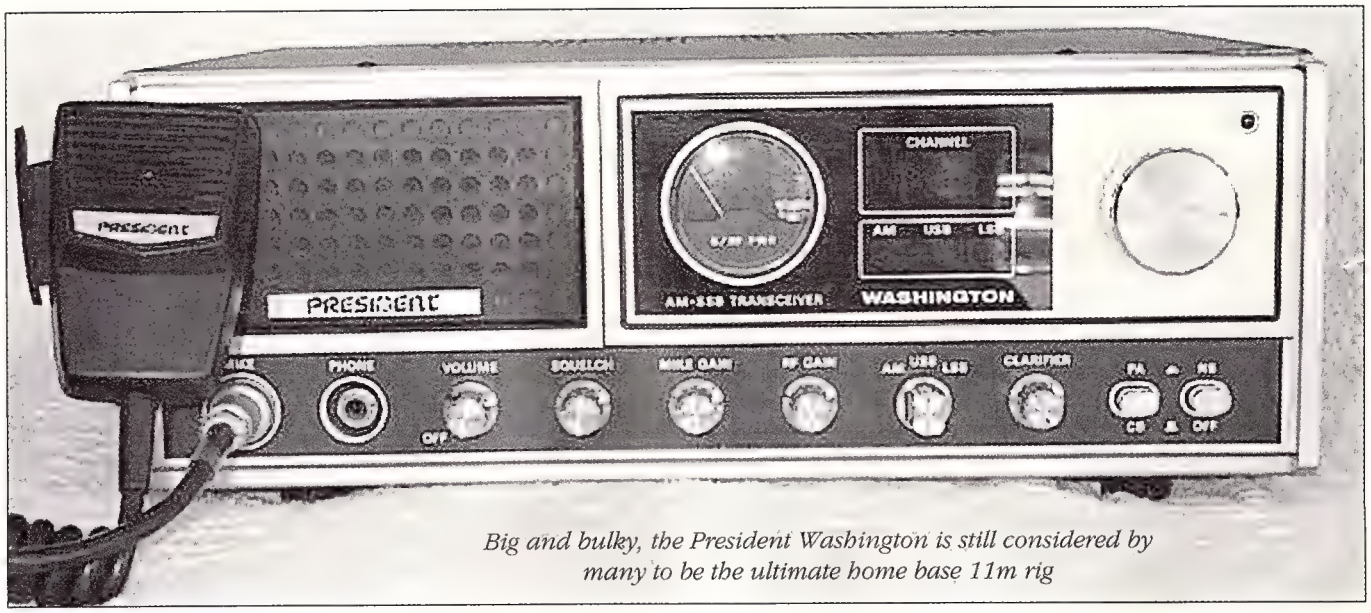
The question is: "Are the latest, hotshot modern radios better, or are some of the old classics as good as you would ever find? Which is better, new or old?". The answer is not easy to find, and there will be many opposing arguments that are put forward to support an answer one way or the other.

I hear arguments that some old classic CBs are better than any modern day CB that you can buy. Classics such as the old Cobra 148GTL, the President Grant or the General Electric 3-5826A, versus the modern day Grant XL or the PRO640e. Desirable qualities as a more sturdy chassis and case, easier servicing and feel of the controls, easier modification for more power and, dare I say it, more frequencies, are often touted as positives for the classic CBs. On the flip side of the coin, the modern day radios tend to adhere to tighter tolerances, have better colour coordination, are smaller and lighter, have more modern construction techniques and components and thus in theory should be more reliable.

Having owned both an older version of the Cobra 148GTL and the newer PRO640e, I can see many reasons why I wouldn't want the Cobra in my car. The PRO640e has smaller, lighter components, with only a few wire straps and connections here and there and so should be more reliable given the rough treatment that a CB can experience in a mobile, has a better colour scheme that suits my car interior, and of course has backlit controls so I can adjust them in the dark easily. This makes the 640e my choice in a car, whereas I can't quite imagine a 148GTL in the same place. But then again, the 148GTL would be fine in the house for base station use. I would rather choose the Cobra over the PRO640e for this situation any day. Maybe it's the smooth operating controls, or the real moving needle meter, or could it be the smoother recovered audio that more suitable to the home environment over the clean, sharp audio of the 640e that is perfect for a mobile. Maybe it's that it looks more of a classic than the 640e that causes me to swing my preference this way for base station use.

BUILT TO A PRICE, OR SIMPLY BETTER VALUE?

There's always the argument that the old radios were built with no compromises, where radios today are built to a price. But, hang on there at bit, this 'built to a price' theory is just as relevant today as it was yesterday; after all, if the old radios were built without any compromise or cost cutting in mind, then many radios would never have become classics simply because no-one would have been able to afford them. What about the radios of yesterday offering better value? I can't see that argument holding any water, simply because electronic items, radios included, have become more affordable, and for a given cost have more features compared to the radio of yesterday. A fine example would be to compare the Icom UHF CB handhelds with three generation gaps between them: the Icom IC40, and the IC40S. The old Icom IC40 is pretty much the UHF CB handheld that started the ball rolling, a classic unit in many people's books, but had only two real features: repeater, and high or low power selection. The IC40S in contrast has programmable scanning, CTCSS, a full five watts of out-



Big and bulky, the President Washington is still considered by many to be the ultimate home base 11m rig

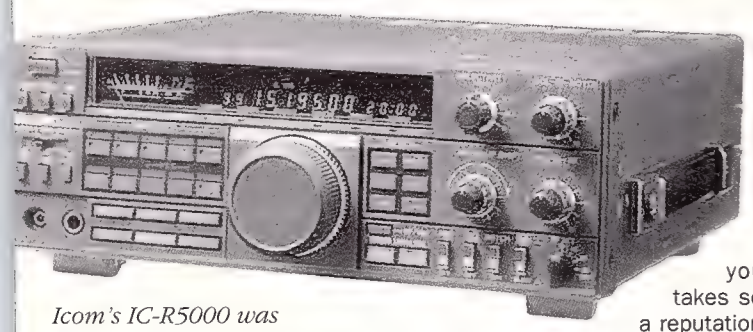
put power, and other nice little features, in addition to repeater and high or low power selection. On top of this, in today's terms, the IC40S is actually more affordable than the IC40 was in it's day.

DO YOU REMEMBER YOUR FIRST LOVE?

There is one factor which you just can't get, no matter how much money you fork out for a nice, slick new radio, and that is the sentimental or nostalgic value. That attachment that grows on you from your first really good quality CB or shortwave receiver just can't be replaced, and I suspect it is this 'first love' quality that is responsible for many 'older is better' arguments.

I recall with fondness my first real communications receiver, complete with glowing valves and all, and it is actually older than I am. When I bought it some time ago it would have been considered obsolete, not forgetting that technically its performance is nothing to get excited about; single conversion, 455 kHz IF only, really poor image rejection towards the upper end of the dial, and no real accuracy of the dial to speak of compared to today's 1Hz resolution digital readout.

But there's something special about the lovely mellow sound of the valve, the warm, soft glow emanating from deep inside the radio and of course the necessity of having to really hunt for your desired station on the dial, and then making minor tuning adjustments every half hour or so, that really endears the old girl to me.



Icom's IC-R5000 was another very popular receiver and was pretty much the first receiver to start taking on more modern styling.

Deviating from radios for a moment, I recall the fun I had with an old Commodore 64 home computer during my school days, and still have fun with to this day.

A 20 year old computer, with only very modest capabilities, an embarrassingly tiny amount of memory, and I still use one?

You bet I do! The games available were simple yet fun, the programs that I created forced me to get intimate with the low level workings of the microprocessor, and there was immense enjoyment for me in doing this. The point is that even though these items have long been superseded, and have since been replaced by items with better capabilities and better affordability, the nostalgic attachment to the old items remains. Rather than let them collect dust, I use them when ever I can.

Yaesu's FRG 100 was a particular favourite for many years and can still be found in many radio shacks.

BRAND AND REPUTATION

Closely related to the nostalgic value is the reputation of a particular radio or brand. With shortwave receivers, Racal and Collins share a wonderful reputation. UHF Cbers will know of people that have been heard to say "If it isn't a Sawtron, it isn't good enough". In amateur circles, brand preference is alive and well with diehard Yaesu, Icom and Kenwood patrons. Just looking at the list of manufacturers here, all of them have been around for some time in their respective fields, and all of them have built a solid reputation for their respective products.

In building this reputation, have you noticed that it takes some time for such a reputation to be built? Consider the Yaesu FRG-7 shortwave communications receiver - a receiver that is lauded as being a good first receiver for those just starting out, even though it is more than 25 years old.

However, what do you think the reaction would be if that particular radio were released as new today? It would probably be considered to be a good boat anchor! It just goes to prove that even though good, modern day equipment is available with comparable performance, the old workhorse is still chosen by many.

Doubtless, this Trio Kenwood receiver had many fans in its day, but, how many would give it room space today?

SO WHAT IS BETTER, THEN?

Just what does better mean anyway? For me it means what I am happiest with. If I want functionality and performance, then I choose to buy a radio that has the functions that I want and is shown to be a proven performer. I'll be happy with that.

On the other hand, if I want something that is simple and cost effective, then that is what I will seek out, and I'll be happy with that. It doesn't matter if it is old or new, if it works, and does what I want, then it finds a home in my shack. Others will be looking for old radios for their antique value - to them simply age or rarity is better.

Outright ease of use and operation will be valued by others over anything else. Reliability might be a key factor to someone else again. So, you can see that "better" means different things to different people. The final conclusion is that you have to decide for yourself if radio X is best for you compared to radio Y.

OUT WITH THE OLD, IN WITH THE NEW...

As time marches on, modern components get better, designers produce better designs (in theory, anyway) yielding higher performance, higher efficiency, smaller and more reliable radios that have more functions and features, all while still being affordable. So does this mean that newer is better?

Technically better in many cases, maybe yes, but the older stuff will still work quite OK, sometimes only being slightly behind in performance with the latest gear, and you can still have a lot of fun with older equipment, and after all isn't that what it is all about?

EMTRON

The following models are available from EMTRON: DX-1b, DX-2, DX-2SP and DX-3.

All EMTRON amplifiers are of similar design, modular construction for easy service and most modules are inter-changeable withing the EMTRON range of amplifiers. All EMTRON amplifiers also have identical features. (See DX-2 features on our web site: www.emtron.com.au). We would also like to point out, that due to extremely effective and advanced design of the control and protection circuitry, so far, we never had to replace a single tube in any of our amplifiers.

DX-1 has now been replaced with the new model DX-1b which is a very much improved version of DX-1. The DX-1b has all the functions or features of the DX-2, (the unique Emtron phase controlled triac soft start, and the same cooling system) except the power output. It can run 800 watts key down indefinitely, or for as long as you want, or 1000 watts PEP.

Emtron's most popular amplifier world wide is certainly the DX-2 & Dx-2a. To this unique amplifier we have added the all new and very exciting DX-2SP.

For the connoisseur, who want nothing but the best, Emtron is introducing the very special DX-2SP. This amplifier stands on its own and has no competition. Produced for the military, the SVETLANA GU-84B tube, with plate dissipation of 2500W, when installed in the new EMTRON DX-2SP, produces a solid 2000W continuous RF output (2500W PEP). Besides the tube and a very special high voltage, high current band switch, as well as the mains transformer, the DX-2SP is identical to our unique DX-2.

Last but certainly no least, is the Emtron's "Big Gun"' the DX-3 amplifier. Specially designed for high power applications, with 3000W continuous RF output power (4000W PEP), the DX-3 is quite unique in the world. Again, the DX-3 has all the features of DX-2, however, it comes complete with QSK module as standard.

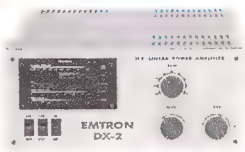
DX-3

4000 WATTS PEP/3000 WATTS CONTINUOUS!

For Industrial, Scientific, Medical, Broadcasting, Radio Communication and Export. This superior amp has all the features of our now famous DX-2, utilizing one single 3000 Watt plate dissipation high tech tetrode tube.

P.O.A - Call us for more information.

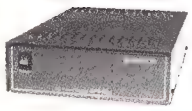
DX-2



The Emtron DX-2/2a is a unique amplifier on the market today. We believe that there is NO OTHER single amplifier which would meet the quality, craftsmanship, reliability and price of the Emtron DX-2/2a.

DX-1B

Now the worlds best one Kilowatter. Has all the features of our now famous DX-2 & DX-3 including unique Emtron soft start and a triple overkill cooling system. Runs 750 Watts key down or 1000 Watts PEP indefinitely.



EPS-20ST

The EPS-20st, the sophisticated 20 amp switch-mode power supply is CE approved. **$249**

EPS-30A

This unique power supply incorporates 4 x protection (voltage, current, temperature & RF) and a dual CROSS NEEDLE meter for continuous monitoring of voltage, current and DC power. **$599**

FIBERGLASS TELESCOPIC TOWER - 33 FT

Specially designed for antennas. All 10 segments are reinforced three times. The intensive black pigment of the outer material makes it UV-resistant and the segments are individually ground to guarantee the vertical loadbearing capacity.Designed to construct antennas for portable purposes. *total length is 3.8ft - 33 ft *total weight 3.3 lb *designed for portable purposes, quick and easy *ideal for inv. V Dipole, Vertical's and Loopantenna. **$199**

The Best Just Got Better!

Discover why AOR receivers are the choice of many federal, state and local government agencies. Military users, laboratories and professional news-gathering operations also use AOR receivers. *New TXCO for great stability - performance not found in most desktop units! *Brighter backlit display for easy use anytime. *New telescopic antenna included for better reception. *New keyboard layout for easier operation. *Attractive new black case. *Now includes 1100 mAh high capacity Ni-Cd batteries. $1190

AR7030 PLUS!

*Increased balance of the mixer for the greatest IP2 &IP3, *High tolerance 0.1% components in DDS ladder for low noise, *Enhanced RF attenuator operation for minimal intermod, *Higher spec. wire aerial input transformer for minimal mixing products, *Ceramic metal cased 4 kHz (displayed) AM filter fitted as standard, *Bourns optical encoder for the smoothest DX tuning, *Features CPU fitted, 400 memories, multi timers & alfa tag. POA

AR7030

Frequency coverage is from 0-32 MHz all mode: AM, Synchronous AM, USB, LSB, CW, DATA & NFM. **POA**

SDU-5500

The SDU5500 Spectrum Display Unit adds a variety of features to extend a receivers capabilities, such as visually identifying new active frequencies and taking measurements. **$2095**

AR5000

Prior to the AR5000, it took 2, 3 or even 4 receivers to cover this range, plus the small size and low power demands make the AR5000 ideal for field use, remote control radio, and local & remote computer control. **POA**

AR5000+3!

Provides three enhancing facilities. A.F.C; switchable automatic frequency control, noise blanker; switchable to help reduce the effects of ignition noise, and synchronous AM; featuring double and selectable sideband. **POA**

AR3000a

Receive coverage from 100kHz all the way up to 2036 MHz without any gaps in the range.

POA

SCANMASTER

Scanmaster Active Base Antenna

25Mhz-1500Mhz

* Marine * PMR
* Civil Aircraft
* Military Aircraft
* Amateur Radio
* 900 MHz Band
* Plus more public services

SP-55 24-1500 Mhz AMP

State of the art, low noise wide-band pre-amplifier that allows top performance from base & handheld scanners. Runs on 12V, DC external

$230

RF SYSTEMS

DX-1

An active antenna for professional & commercial applications. Its military version has the same specifications! **$1170**

WINI-WINDOM ANT.-Comes with magnetic Balun. Broad-band antenna for portable radios, communication receivers and scanners with shortwave coverage. Ideal for portable receivers, scanners and computer controlled receivers.

DX-7 $595

Active helical short-wave receiving antenna, designed to withstand the worst weather conditions and especially for long distance and weak signal reception. Optional DC adaptor for 12V battery supply.

MLB

Magnetic Longwire Balun makes it possible to use coaxial lead-in cable with all forms of long-wire or other types of wire antennas. **$135.00**

DX-10 $99

DX-10 is a low cost high quality active antenna for long, medium and shortwave reception. Designed for indoor as well as outdoor use. The sensitivity of this antennas rises with the frequency. **100 kHz - 30 MHz.**

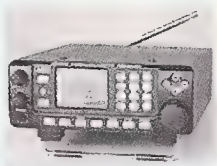
MT ISOLATOR Noise Reducer and Lightening Protector

The MT Isolator is a completely new type of device which separates the antenna completely from the receiver or transceiver. It reduces atmospheric static and man-made noise and interference. It protects transceivers, receivers and operators from static charges and lightening. **$240**

NEW! AR8600

Any time, any place...

WIDE BAND ALL MODE RECEIVER
530 KHZ - 2040 MHZ WITH RS232 PORT



The AR8600 is an extremely versatile receiver which can be used virtually anywhere, mobile, base or trans-portable... powered from an optional 12V d.c power supply, optional d.c lead from a 12V vehicle or from an optional internally fitted NiCad battery pack. A strong twin metal case with die cast front panel characterizes the multi-purpose role. All mode receive capability is provided including Single Side Band with programmable tuning steps down to a resolution of 50 Hz with the frequency established by a highly accurate Temperature Compensated Crystal Oscillator (TCXO). An RS232 port further extends the capabilities with free supporting control software available from the AOR web sites. **$1595**

AEA INSTRUMENTS

***SWR-121 HF:**
1-30MHz Graphical SWR Antenna Analyzer.
***SWR-121 V/U:**
120-175, 200-225, 400-475 MHz SWR Analyzer.
30-150 Analyst: 30-150 MHz graphical antenna analyzer.
***Cellmate Analyst:**
806-960 MHz graphical antenna analyzer.

AEA CIA-HF
400Hz - 54MHz

WINRADIO

Expand the power of your WiNRADIO with numerous digital modes and utilities. Puts advanced radio receiver technology directly on a PC platform!

*Audio Recorder and playback	WEFAX) and more!
*Packet Radio	**WR-1000i...$518.95**
*Radiofax (HF fax and WEFAX)	**WR-1000e...$731.23**
*Aircraft Addressing and Reporting System(ACARS)	**WR-1500i...$848.49**
*Packet Radio	**WR-1500e...$951.23**
*Radiofax (HF fax and	**WR-3150i-DSP...$2,629.44**
	WR-3150e...$2629.44

TEN-TEC

New Visions of the Future HF Transceiver! Introducing the marriage of the power of PC, Digital Signal Processing and the HF Rig. Combines the power of your PC with a cutting edge ID DSP design. **$1995**

RX-320 PC RADIO

Ask for information on this DSP based receiver. Runs on Windows. **POA**

RADIOMASTER

NEW!

A-50

Wide Band active antenna for long, medium and shortwave.

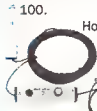
*Freq range 30 kHz -50MHz * In and outdoor use *Omni-directional recep. pattern *Up to 10 dB —gain, low noise *1.1m long, 10 m lead-in coax *weatherproof*

$285

A-108

Low Cost high quality active antenna.

Especially developed for the use with computercard receivers like the Winradio and Icom IC-PCR1000 and PCR-100.



However can be used with normal portable and tabletop receivers. **$299**

AC-108

Antenna combiner for Wideband receivers and scanners.

$155

Covers frequency range of 30 - 108 MHz, the range where neither shortwave shortwave antennas nor discones perform satisfactorily. Is equipped with an adjustable output level to avoid overload of the antenna. Plug in design, no extra cables required.

P-30

Wide Band receiving wire antenna for long, medium and shortwave.

*Freq. range 500kHz - 30 MHz *Just 4 meters long, 4m coaxial cable to the receiver .*In and outdoor use * No antenna tuner required *Built in matching transformer * completely assembled. * Passive, no intermod. or overload. $95

EMTRONICS
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(Above York Opticals Telescope Shop) P.O Box K21 Haymarket, 2000
Phone: 9211 - 0988 Fax: 9281 - 1508
Email: Emtron@ozemail.com.au Website: http://www.emtron.com.au

Russell Bryant tells you what to look for when

BUYING A SCANNER

Had I kept records, they would likely reveal that the most frequently asked question by those contemplating the purchase of a scanner would be: "What scanner should I buy".

If it is a newcomer asking, I tend to nominate used or secondhand receivers that are easy to use, don't cost the earth, provide plenty of memory channels and will fulfil the buyer's needs during and beyond the initial learning stage.

The odd thing is that those who want to become involved in scanning, yet have little or no experience, often buy a new superdooper, all-mode, all-band receiver, when a secondhand unit with less features - and a flatter learning curve - may have been a more prudent purchase.

This is especially relevant if these novice monitors eventually decide that scanning is not their cup of tea and want to sell their new and initially expensive acquisition. Most times a substantial amount of money is lost.

Some experienced scanning devotees shrink from buying a used scanner, occasionally with good reason.

A bargain can be had if you know what to look for and are able to identify the telltale signs of potential trouble as well as the methods employed to hide any fault.

The reasons for experienced operators rejecting pre-loved equipment are many and varied. The main reason is because they have at some stage been lumbered with a lemon - good money lost, money that could have been put towards the purchase of a new scanner.

This brings us to the great scanning debates: "Do I buy new or used? What problems can I expect to encounter when buying a used scanner? Do I risk buying one, or chance losing money on a new receiver, that I may decide not to keep?"

In these pages I hope to address these, as well as one or two other issues.

CAVEAT EMPTOR

Before proceeding, a word of warning.

There is no magic formula for buying secondhand, no special way of telling whether the scanner you have your eye on has been fiddled with, or is in fact a genuine bargain, but with a little common sense, as well as the application of some basic rules, there should be no reason why a budding scanner enthusiast should not buy a used scanner.

If it is a newcomer asking, I tend to nominate used or secondhand receivers that are easy to use, don't cost the earth, provide plenty of memory channels and will fulfil the buyer's needs during and beyond the initial learning stage.

Let's examine the intricacies of buying secondhand.

"Never judge a book by its cover", is perhaps okay if you are buying used books, but when it comes to acquiring secondhand scanners, appearance maybe the first sign of a bargain or alternatively something being amiss.

A comparatively unblemished case could indicate that the scanner has not been dropped, used in a vehicle, or subjected to abuse. I suppose this is where sticking by the old "books and covers" proverb may come in handy because almost all suppliers of scanning radio equipment stock spare parts.

Front panels along with top and bottom case halves can be purchased as spares to replace damaged items. This provides an instant and frequently deceptive facelift.

The fact that the panels have been swapped may not be an issue for some. After all, the internals may be perfectly alright, it's just the outside that looked a bit messy. Some could argue, and rightly so that there is nothing wrong with this practise.

Quoting another popular saying, it is "making a silk purse out of a sow's ear" or just making a perfectly good scanner more saleable.

BUYING A PIG'S EAR

Whether you are into sow's ears is beyond the scope of this article. Suffice to say that dressing up an older-model scanner may be camouflaging more than just normal external wear and tear. It could be hiding years of mistreatment.

However as an eager, but unseasoned buyer in a hurry, you maybe taken in by the "as new" appearance of your prospective purchase. The item looks okay on the outside, and then there's the box and manual and everything else it is supposed to have. It'll be fine.

So, as your heart commands your brain, your hand conveys the cash to the seller, who can barely suppress his emotions.

You may not realise it but you have just bought a clunker!

At home you plug in this potential source of spare parts. The display shows the frequency, and it programs without a hitch, but something just does not seem right.

It doesn't take long for the penny, or perhaps more correctly - many hundreds of dollars - to drop. No audio is coming from the speaker!

A tweak of the squelch control reveals that familiar rushing sound of unmuted FM, so the speaker is working OK.

Maybe the antenna is not connected properly, or the service you are trying to monitor is having a quiet day. Every excuse is used to delay the inescapable conclusion. This thing is stuffed!

Ever so slightly annoyed about being deceived, you telephone the less-than-truthful individual who happily took your money, in an attempt to seek a refund. He dismisses your request in no uncertain terms and by now you are thoroughly disgusted with scanning and those involved in it.

A little less emotion and little more time could have avoided this dilemma.

Before parting with the cash, have the vendor power up the scanner just to make sure it works. Maybe it would be wise to adopt the rule that every scanner is technically suspect until proven otherwise.

If it passes the power-up test, have the vendor program a few frequencies into the memory. Make sure he tries a couple of the low-power variety rather than the powerhouse local police channels.

If it is a wideband receiver, make sure as many frequency ranges as possible are checked. Basically, make sure that the model you are considering has the frequency range you need.

When the seller is demonstrating the scanner, is it connected to an external antenna? If so, ask if a telescopic whip or rubber-duckie antenna is included in the sale. Try the same reception test with the radio connected to whichever antenna is applicable.

While a reduction in performance is to be expected, the powerful stations around the place will still be heard.

Time to delve deeper!

TEST IT, TRY IT

Satisfied that the scanner covers and can hear the appropriate frequencies, check that it receives all bands on an outside whip as well as the set-mounted antenna.

Ask to see the insides. Note that this may not be possible on some types of scanners, especially portables, so don't push the point too hard.

Additionally, some sellers won't be happy about

disassembling their scanners. You may hear a few expletives that you have never heard before, and if this is the case the decision rest with you as to whether or not you take the unit home, or it stays put.

If the vendor is happy to show you the internals, check for anything that indicates a repair job.

When I was studying electronics at tech my instructor told me that a good radio technician possessed three attributes - good eyes, a good nose and the ability to feel.

Look for soldering that doesn't fit in with the rest of the board. Look for flash or burn marks either on the printed circuit board or the lids.

Look for a component that may be discolored or any electrolytic capacitor that appears "popped". These can leak electrolytes that may cause damage to copper tracks and component wires.

Before parting with the cash, have the vendor power up the scanner just to make sure it works. Maybe it would be wise to adopt the rule that every scanner is technically suspect until proven otherwise.

The odor of a burning or burnt electrical component is one that can never be mistaken, so stick your nose in and smell, as anything that may have self-immolated will be obvious.

Before sticking your fingers in for a feel around, remember that some components do get hot as part of their normal operating cycle, so unless you are experienced in radio circuits, the touch test can be dispensed with.

If, on the other hand you know what to feel for, check for excessive heat. If any of these tests reveal a problem, then tread carefully because the scanner maybe in need of attention.

Reverse polarity, old age and voltage oversupply are the usual reasons for component failure.

Harking back to the mismatched soldering, don't always assume that a component change has been performed by a backyard technician armed with a screwdriver and little else.

Sometimes a refurbished radio will behave like new, because all work has been carried out by a factory-authorised technician, who will under most circumstances guarantee his efforts.

Ask how old the scanner is, but exercise some caution as the truth is often embellished. If the seller says the receiver is only three-to-four-months-old, then be comfortable with the fact that it is probably six-to-12-months. If in doubt ask for the original receipt. If it cannot be produced, then take care.

NO GUARANTEES

The secondhand-scanner market is not a place to be afraid of. Bargains can be had if you simply apply cautious optimism and don't let your emotions override commonsense.

Remember scanners sold privately rarely, if ever, come with a guarantee, and seldom can be returned if they malfunction.

Anyone considering buying their first scanner and are not sure of whether they are really bitten by the bug, would be advised to look to the secondhand market first. It maybe less traumatic than buying new than dropping almost half the radio's value when they sell it a few weeks or months later.

On the other hand buying new affords a degree of consumer protection and an expectation that new products will work straight out of the box.

If pre-loved is not for you, if it is "new or it's nothing", then what are the pitfalls of buying a new scanner as opposed to a used one?

Scanning is like every other recreational pursuit - some expenditure is involved.

The prices of scanners vary considerably, especially in the new category. You can expect to part with about $170 for a very basic, no-frill's handheld, or $2000-plus for a state-of-the-art multifunction base scanner.

A word of advice for the newcomer. Avoid buying a top-of-the-range model as a first scanner. These beauties are

packed with more features and functions, and use more dials and buttons than receivers at the lower end of the scale. They can be difficult to master and can destroy enthusiasm quicker than a pin applied to a balloon.

Irrespective of whether you are buying a new or used unit, consider what your scanning activities will entail. This will be the major factor in determining the type and model of scanner that will command your attention for the next few years.

Scanning receivers come in three basic forms. The first is the base, or desktop scanner. These are limiting as they require 240-volt AC power to operate. They restrict the user to a fixed point, so unless a high percentage of your monitoring is to be conducted at home, base scanners should generally be given lowest priority.

Mobile or car-mounted units are far more practical for the out-and-about monitor, however they too have their limitations.

Mobile scanners require 12 volts DC for power and you can of course pack a car battery in your kit. Carrying the additional weight is very good for improving aerobic capacity, but the drawbacks are obvious.

Mobile scanners, as you may have deduced, rate second place.

INDEPENDENCE AND MOBILITY

Now we come to the optimum receiver for mobile and general monitoring, - the handheld portable scanner.

It is the most versatile of all, especially for the perambulating enthusiast. Whether it is at home, in the car or on foot, the portable fulfils all needs.

The radio accessories market is massive, and many items manufactured for the two-way radio industry can be adapted for scanning use. Shop around when looking for accessories for your preloved scanner, or indeed your new one.

The portable's independence of power supplies is possibly its most important feature. At home it can be powered via an AC/DC plug pack converter, lessening the drain on the receiver's internal batteries. In a car a DC lead terminated with a cigarette lighter plug will provide the same benefit.

An external antenna mounted on your car will improve the receiver's proficiency at pulling in signals.

In the field, a handheld scanner really comes into its own. Attached to the belt, or slipped into a pocket, the world of local radio operations is accessible as and when required.

You may have guessed by now, I am a champion of the portable scanner.

In the main new scanners come with all the bits and pieces you need to get among the action.

Some come with rechargeable batteries in the box, other brands have them as an optional extra. Most include an earphone for private listening. A carry case, to protect the radio from scratches and day-to-day wear and tear, is nearly always part of the kit. Some throw in a shoulder or a carry strap of some description as well. Most come with an antenna, albeit a compromise rubber-duckie or telescopic whip.

Secondhand scanners often don't come these accessories. This entails additional cost, which may be outside the budget.

If you are like me, and prefer to have original equipment for your scanner, then expect to pay substantially more a genuine item, rather than a generic aftermarket item.

The radio accessories market is massive, and many items manufactured for the two-way radio industry can be adapted for scanning use. Shop around when looking for accessories for your preloved scanner, or indeed your new one.

With the diversity of scanners on the market today, the choice is not easy - new or used, mobile or portable. The list of new units is long, and when you add to that the number secondhand units available, the choice can be daunting to the inexperienced buyer.

THE FINAL WORD

In conclusion, new is nice, but if money is in short supply, then consider the hundreds of scanners on the secondhand market.

On average a current model scanner, for sale second hand, is worth about half the price of a new unit.

If cost is not the only consideration, in that you would just like to get a feel for the hobby before committing large amounts of money to it, a pre-loved receiver might also be a wise investment.

Buying a scanner is easy. There are a myriad of outlets and many models at all levels of performance from which to choose. Their cost varies from a few hundred dollars to many thousands.

It is learning about and using a scanner that is the hard part. Don't complicate matters by buying a receiver beyond your capabilities. You will only lose heart and probably sell the radio - at a guaranteed loss.

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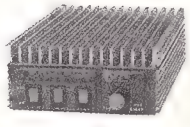
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WORTH KNOWING

NEW AMSAT SATELLITE

AMSAT-NA president Robin Haighton has announced the amateur radio satellite AO-40 might start transponder operations soon if tests and orbital manoeuvres go as planned. Transponder operation would allow a whole section of the spectrum in the neighbourhood of 435 MHz or even 145 MHz to be reproduced on 2.4 GHz for stations in the ground, opening a wide range of possibilities.

The AO-40 team hopes a recent manoeuvre has minimised the effects on the satellite's orbit, caused by atmospheric expansion at the peak of the solar cycle. Full duplex operation from the damaged AO-40 would surpass what had been available a years ago from the now-defunct AO-13. "We have estimated that the downlink could provide up to 27 dB more signal", he said.

AO-40's orbit will be adjusted and various on-board transmitter and receiver systems checked to see what works and what does not. "We're still pretty sure that the two metre and 70cm transmitters are not there, but we're equally confident that the receivers for those bands still are."

THERE GOES MIR

As is now common knowledge, the Russian Mir space station was brought to earth (or water, actually) according to plan. Over its 15 years of operation, Mir hosted many amateur radio operators as crewmembers who often used the ROMIR call sign. Countless amateur radio enthusiasts took the opportunity to speak directly with Mir's crew or to access Mir's

A NEW 2M RIG FROM ALINCO

A new Alinco product, the 2-metre band DR-135TP is about to hit the market. What does it offer? For a start, you can choose a black or pewter front panel colour. Next, you can purchase the unit with or without an on-board 1200/9600 bps TNC. In addition, you can have 50 watts or a choice of two other lower power settings and you get 100 memory channels. The front panel GPS input for APRS operation and the rear panel DSUB9 computer connection mark the DR-135T as a really recent design, too. The large, 7 character alphanumeric display, the choice of wide or narrow FM modes, the theft alarm feature, AM air band receive and the (wait for it) backlit microphone all add to the new unit's appeal.

NEW HAND-HELD TRANSCEIVER FROM ICOM

Icom America has announced the release of the Triband transceiver, the IC-T82A which covers 50 MHz, 144 MHz and on receive most of 495 KHz to 1319 MHz.

It offers is wide-band reception of AM, FM, and WFM, so not only you can hear your favourite TV programs with the pre-programmed TV memories, but you can listen to short-wave, AM and FM broadcasts, the emergency services and so on. The IC-T82A offers 555 alphanumeric memory channels, including 50 band edge-scanning memories. A full 5 watts of transmit power and up to 5 or 6 hours of operating time is available via the supplied lithium-ion battery. The single knob can be customised for either channel selection or volume control. There is a DTMF, a Morse code frequency-in-use system, backlit buttons (and LCD display) and high speed scanning available.

packet radio system. SSTV pictures transmitted via from Mir also delighted earthbound amateurs. Now all of that has finished.

The watery location struck with space debris from the disintegrating craft was somewhere in the middle of the Pacific Ocean. And while most of the aging spacecraft burned up upon re-entry, heaps of bits and pieces apparently ended up sinking into the ocean somewhere between Chile and Australia.

A wide range of personal belongings, which were stranded in the module damaged in a collision some years back, burnt up with it. This included heaps of paperback books and so forth brought aboard by US astronaut Shannon Lucid.

While Russian space officials planned no attempts to recover any of the Mir debris, we wondered if they could have given the idea more thought. Postings on some Internet auction sites are seen to be selling such things as clamp off the 'wing'of the Russian MIR space station, in addition to lesser items such as circuit boards and other goodies. The owners of these amazing items were said to have been in the South Pacific 'on a fishing charter' when Mir was brought down. The wing clamp had a bid of $20,000 by noon of the day it was posted. Keep an eye on the classifieds for more such bits and pieces - and some paperback books ...

WIRELESS MICROPHONES AND DIGITAL TELEVISION/ DATACASTING

Wireless microphones are used in heaps of venues for all kinds of purposes. Most are operating on VHF and UHF frequencies which are not in use in the locality. Some microphones have lobbed into the region allocated to unused TV channels - and this varies from location to location, according to a recent ACA news release. The problem is that with the introduction of digital television broadcasting and datacasting in most capital cities, it is likely that there will be little unused VHF TV spectrum space within a few years and likewise, the number of available UHF TV channels will also be reduced.

The ACA paper reviewed the existing class licence technical conditions and confirmed that the operation of VHF and UHF wireless microphone systems and range of digital services operating on the same channel in the same area would result all manner of mutual interference.

It concludes that some VHF wireless microphone systems operated in cities will be required to cease operation or be retuned as digital television services are introduced. Users of such microphone systems will need check to spectrum arrangements in deciding just what is available at a particular location. The ACA plans to provide information its web site about TV channels used in various areas to assist with this.

Power Line Communications Technology

The German government has recently approved the introduction of Power Line Communications (PLC) systems, provided they comply with a German regulation for wideband radio emissions known as NB30. These regulations have been strongly opposed by radio users in Germany, but the German government has decided to 'give modern telecommunications technologies a chance'.

RF emission levels arising from PLC may be much higher than the levels considered acceptable by the United Kingdom HF radio users group. Even low-power PLC systems of limited functionality are said to exceed this limit. The interference potential of PLC is clearly spelled out in the EMC column in the April edition of the UK journal RadCom. The RSGB is actively working with other UK users of the HF radio spectrum to produce its recommendations for proper regulation of PLC systems.

This columnist wonders exactly how organising transmission along power lines might work. Do you simply you run a coax cable from your transceiver up to the 66KV lines? I sure wouldn't like the job of plugging it in. And remember, that recent studies of 23,000 homes near powerlines in the UK suggested that the electromagnetic field surrounding the cables can trigger leukaemia. So make your QSOs short!

THE $20 MILLION HAM

Meanwhile, US businessman Dennis Tito, the latest arrival to the International space station, is now an amateur radio operator. Tito, 60, had been in Russia training for his $20 million mission. He is now the first tourist-in-space and will apparently be using his newly gained call sign KG6FZX. We do not what bands he will be on, nor whether you will need to include a dollar when sending off for his QSL card. NASA says that there is far to much work to be done on the station spend time entertaining tourists, but cash strapped Russia has asserted that it has the right to send anyone to the space station that it chooses. This could mean that the only thing he Mr Tito might be permitted to do is sit in a corner and operate his Amateur Radio station...(Qnews)

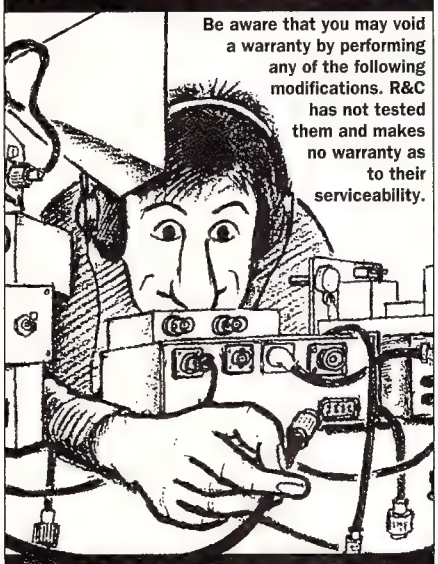
A$100 - YOUR'S OR MINE?

In Britain, new laws mean that if neighbours who phone up to complain about interference from such things as Amateur Radio transmissions will be on an A$100 fee if it turns out that their own equipment is at fault. The British Radiocommunications Authority will not charge if the interference is found to arise from faulty transmitters and so on. (Gb2rs/apc-news)

NEW DIGITAL STANDARD

The International Telecommunications Union (ITU) has just approved a standard for digital broadcasting in the broadcast bands below 30 MHz, The new standard to be known as the 'in-band, on-channel' (IBOC) digital audio broadcast (DAB) system. It is said to provide near-CD quality sound and enables simultaneous broadcasting of analogue and digital signals. For more details have a peek at the site www.ibiquity.com

MODIFICATIONS



Be aware that you may void a warranty by performing any of the following modifications. R&C has not tested them and makes no warranty as to their serviceability.

Mods, Fixes and Updates

By Greg Towells, VK2GJT
E-mail: vk2gjt@ix.net.au

AR7030 SYNC DETECTOR ALIGNMENT

A 30Hz error in initial tuning is quite in order - this phase is only to get the receiver roughly tuned and the filters in the right place and this error should not affect subsequent Sync tuning.

If you hear a beat tone when the receiver switches from wide sync bandwidth to narrow, it is almost certainly due to a small alignment error causing an offset between the different bandwidths. Readjustment is quite straight forward (instructions follow). You will need a digital voltmeter to fully align the detector.

This is how to do it.

Switch on the receiver and allow 15 minutes to warm up. Remove the top cover. Leave the internal speaker connected, or you can connect an external speaker. If the NB7030 option is fitted, leave this in situ.Remove any aerial and operate 'Default Set'. Select AM Mode and tune the receiver to zero (000.00 kHz). Connect the DVM between TP3 and TP4 (near to the centre of the PCB) then adjust VR2 for a reading of 0V (less than 10mV is optimum). Choose the CONFIG menu and select 'Sync Detector' - Select 'Narrow'. Select Sync Mode and adjust VR3 for zero beat. (Adjust the volume setting as required). Change the Sync Detector setting to 'Auto' and check that the auto process cycles until 'Snc' is displayed with no beat note. Change between AM and Sync modes if required, and repeat the process above. Replace the top cover. Be sure that the cover is fully down (press firmly) before inserting the four fixing screws. Do not over-tighten the screws.

TS-2000 EXPANSION

Here are the expansion mods for the new Kenwood TS-2000 transceiver. This info came from a reliable source but as I do not possess a TS-2000 I cannot confirm that the mod works. Anyone want to offer me one?

This is the way to do it. Remove the top and bottom cover. Loosen the 4 screws that tighten the front panel.

Pull the front panel forward, holding the upper part. You will see a fan on the left. At the bottom right of the fan, there are jumpers. As is usual, the jumpers are surface mount components.

Remove R52 to expand the RX frequency, and remove R54 to expand the Cross-band Repeat, SkyCommand and External Remote features. I cannot disclose the TX expansion mod here, but it is probably in between there somewhere. After the mod, you must perform ALL RESET by pressing and hold [A=B] key when you turn on the transceiver. You will lose all the memory data.

FRG-100 AUDIO MOD

Here are mods that will clean up the "muddy" audio of the FRG-100. The mod is fairly simple. Find and remove capacitor C1183. Change capacitor C1164 for one of 100pF. Change capacitor C1157 to a 0.1F.

All of the above components are on the top PC board and are accessible by removing the top cover.

TS-850S DISABLE MW ATTENUATION

This mod greatly improves the sensitivity and likewise the reception on the AM broadcast band. No noticeable unwanted side effects have been noted in modified radios. Any splatter can be taken care of by using the notch filter and the attenuation on the front of the radio.

This mod is not complicated and can be done in fifteen minutes. The main caution is that you will be soldering two points on a circuit board that is loaded with surface mount components.

There is little room to work on the board, so be very careful with your iron! If you don't feel comfortable soldering, get someone else to do it as you can cause a solder bridge and ruin your radio without even trying. With that in mind, here goes:

Remove the eleven screws that secure the bottom cover to the rig. There are six screws on the sides and the five on the bottom cover itself. Remove the bottom cover, there are no wires attached to the cover. Lift the bottom cover right off, leaving the top cover of the radio on.

Locate the RF BOARD, it is X44-3120-00. This is the board where you plug the optional filters into. With the open radio in front of you, and the front of the radio facing you, the RF BOARD is the one on the left. There are only two boards under the bottom cover.

Locate the chrome like shield on the rear of the RF BOARD. Remove the four screws that hold this shield to the board.

Remove the shield by lifting the front of it up while sliding it forwards, towards you. Watch out for all the little wires and ribbon cables going to and from the RF BOARD.

Look at the rear of the board and towards the left corner.(the radio is still facing you upside down) and locate two ICs numbered IC1 and IC2. Directly behind the ICs are a bank of adjustable coils in metal cans. There are nine of these coils in a group. Directly to the left of these coils are many green and red inductors which are standing up. They look like resistors but they're really small coils.

These inductors are part of the bandpass filtering for each of the bands on the radio. The capacitors and resistors that complete the bandpass filtering are on the other side of the board and are of the surface mount type. You are only concerned with the bandpass filter for the 0.5 to 1.6 band.

Notice the numbers for the inductors and locate L8 and L9. They are right at the edge of the board in the left rear corner you will notice that 0.5 - 1.6 is stamped right next to L9. BINGO! you have found the part of the circuit that you will modify. Look at where the 0.5 - 1.6 is stamped on the board next to L9. You will see two

bronze or gold solder points there directly next to the numbers .5 - 1.6. There is nothing soldered at those two points.

This is where you will solder a jumper wire between the bronze points. Do NOT confuse it with the other two solder points with the line running in between them next to the Phillips head screw!!! You want the two points that are spaced very close together that is right next to L9.

In case you were wondering, the purpose of the jumper is to bypass the two 150 ohm resistors that are in series after the bandpass filter. The resistors add between 20 and 25 db attenuation to the AM broadcast band.

You will have to do the soldering on the OTHER SIDE OF THE BOARD. Remove the nine Phillips head screws that hold the RF BOARD to the chassis. On the back of the radio, look for the switch stamped SW 1. It's right below the grounding post and has the two positions, INT and EXT. Remove the two screws that hold the switch to the back of the rig. The switch is soldered to the RF BOARD and you wont be able to lift the board up until the screws are removed.

Unplug enough cables from the board so you'll have enough room to lift the RF BOARD up to solder the jumper. There is no need to remove the board from the rig. Slide it towards the front of the rig until the switch SW 1 clears the back of the rig and lift the left side of the board up and prop it up with a small block of wood. Locate the bronze solder points on the underside of the board. There will be a small amount of solder at these two points on the underside of the board.

Bend a small jumper out of wire that fits the two bronze points on top of the RF BOARD.

You will place the jumper on the top and solder on the underside of the board. With a pair of needle nosed pliers, place the jumper into the holes and simply heat up the existing solder on the underside until the jumper slips down farther into the holes.

You'll notice the large amount of components on the underside versus the lack of components on the top of the board.

Be careful when heating the solder on the two points as you don't want to disturb the surface mounted parts or cause any excess solder to run onto them or the foil nearby.

You are now done.

Re-assemble in reverse order, plugging the wires back in carefully, making sure they don't get plugged into the wrong place. Also avoid pinching them when replacing covers. Having done all that, you deserve a cold one whilst you enjoy the great reception on the Medium Wave bands.

In case you were wondering, the purpose of the jumper is to bypass the two 150 ohm resistors that are in series after the bandpass filter. The resistors add between 20 and 25 db attenuation to the AM broadcast band. For some reason, Kenwood thinks that the receiver would become overloaded by strong nearby broadcasting stations, which would cause distortion.

That's all there is to it.

More next month....bye..Greg

9000xlt Light Mod

This mod will reduce the backlight intensity of the BC-9000xlt scanner. You might find this useful if your operating environment is in a low-light area.

Remove top and bottom covers. Disconnect the speaker (not to forget to hook on again after the modification). Place the scanner front panel toward you and find resistor R343 on the left side of the board, you can't miss it near on-board connector T2, the 3transistors and the 3 resistors.

Exchange R343 (2.7 Ohm) for 180 Ohm 2 Watts. You could also try using a variable resistor to explore what the suitable light strength is for you. Beware that the board-connections are double-sided.

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The DX LIST to end all DX lists

Part 5

If you're a DXer, this list is the ultimate. Compiled by Rod Dinkins, AC6V, ex NCDXC Newsletter Editor, over a number of years, reference to it will tell you pretty much all you need to know about the station you are hearing – what country it is, despite a strange sounding prefix, and what part of the country by ITU and CQ zones.

This the final section, part 5 of 5. Combine it with the previous four issues and you will have the most comprehensive DXing information we have ever seen. Our sincere thanks to Rod for his co-operation in allowing us to publish what has taken him years to compile.

Primary Prefix is in BOLD
Secondary Prefix Assignments are indented.
* Series allocated to an international organization.
** Provisional allocation in accordance with No. S19.33. Between radiocommunication conferences, the Secretary-General is authorized to deal with questions relating to changes in the allocation of series of call signs, on a provisional basis, and subject to confirmation.

VHA-VNZ Australia (Also See AX, VZ)
VH Australia (ITU Zone 55,58,59 CQ Zone 29,30)
VI Australia (ITU Zone 55,58,59 CQ Zone 29,30)
VJ Australia (ITU Zone 55,58,59 CQ Zone 29,30)
VK0 Heard Is (ITU Zone 68 CQ Zone 39)
VK0 Macquarie Is (ITU Zone 60 CQ Zone 30)
VK0/H Heard Is (ITU Zone 68 CQ Zone 39)
VK0/M Macquarie Is (ITU Zone 60 CQ Zone 30)
VK1 Australia - ACT, Australian Capital Territory (ITU Zone 59 CQ Zone 30)
VK2 Australia - New South Wales (ITU Zone 59 CQ Zone 30)
VK3 Australia - Victoria (ITU Zone 59 CQ Zone 30)
VK4 Australia - Queensland (ITU Zone 55 CQ Zone 30)
VK5 Australia - South Australia (ITU Zone 59 CQ Zone 30)
VK6 Australia - Western Australia (ITU Zone 58 CQ Zone 29)
VK7 Australia - Tasmania (ITU Zone 59 CQ Zone 30)
VK8 Australia - Northern Territory (ITU Zone 55 CQ Zone 29)
VK9 Christmas Is (ITU Zone 54 CQ Zone 29)
VK9 Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9/H Lord Howe (ITU Zone 60 CQ Zone 30)
VK9/N Norfolk Is (ITU Zone 60 CQ Zone 32)
VK9/W Willis Is (ITU Zone 55 CQ Zone 30)
VK9/Y Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9/Z Mellish Reef (ITU Zone 56 CQ Zone 30)
VK9C Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9KC Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9KL Lord Howe Is (ITU Zone 60 CQ Zone 30)
VK9KM Mellish Reef (ITU Zone 56 CQ Zone 30)
VK9KN Norfolk Is (ITU Zone 60 CQ Zone 32)
VK9KW Willis Is (ITU Zone 55 CQ Zone 30)
VK9KX Christmas Is (ITU Zone 54 CQ Zone 29)
VK9L Lord Howe Is (ITU Zone 60 CQ Zone 30)
VK9M Mellish Reef (ITU Zone 56 CQ Zone 30)
VK9N Norfolk Is (ITU Zone 60 CQ Zone 32)
VK9NC Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9NL Lord Howe Is (ITU Zone 60 CQ Zone 30)
VK9NM Mellish Reef (ITU Zone 56 CQ Zone 30)
VK9NN Norfolk Is (ITU Zone 60 CQ Zone 32)
VK9NW Willis Is (ITU Zone 55 CQ Zone 30)
VK9NX Christmas Is (ITU Zone 54 CQ Zone 29)
VK9W Willis Is (ITU Zone 55 CQ Zone 30)
VK9X Christmas Is (ITU Zone 54 CQ Zone29)
VK9ZC Cocos Keeling (ITU Zone 54 CQ Zone 29)
VK9ZL Lord Howe Is (ITU Zone 60 CQ Zone 30)
VK9ZM Mellish Reef (ITU Zone 56 CQ Zone 30)
VK9ZN Norfolk Is (ITU Zone 60 CQ Zone 32)
VK9ZW Willis Is (ITU Zone 55 CQ Zone 30)
VK9ZX Christmas Is (ITU Zone 54 CQ Zone 29)
VL Australia (commercial users only (ITU Zone 55,58,59 CQ Zone 29,30)
VM Australia (commercial users only) (ITU Zone 55,58,59 CQ Zone 29,30)
VN Australia (commercial users only) (ITU Zone 55,58,59 CQ Zone 29,30)
VOA-VOZ Canada (Also See CA-CK, CY-CZ, VA-VE -VG, VX-VY, XJ-XO
VO Canada (ITU Zone 02,03,04,09,75 CQ Zone 01 - 05)
VO1 Newfoundland (ITU Zone 09 CQ Zone 05)
VO2 Labrador (ITU Zone 09 CQ Zone 05)
VPA-VQZ United Kingdom of Great Britain and Northern Ireland
VP2E Anguilla (ITU Zone 11 CQ Zone 08)
VP2M Montserrat (ITU Zone 11 CQ Zone 08)
VP2V Brit Virg Isle (ITU Zone 11 CQ Zone 08)
VP5 Turks Caicos (ITU Zone 11 CQ Zone 08)
VP6 Pitcairn (New) (old VR6) (ITU Zone 63 CQ Zone 32)
VP8/F Falkland Is (ITU Zone 16 CQ Zone 13)
VP8/G So Georgia (ITU Zone 73 CQ Zone 13)
VP8/O So Orkney (ITU Zone 73 CQ Zone 13)
VP8/SA So Sandwich (ITU Zone 73 CQ Zone 13)
VP8/SH So Shetland (ITU Zone 73 CQ Zone 13)
VP9 Bermuda (ITU Zone 11 CQ Zone 05)
VQ9 Chagos (ITU Zone 41 CQ Zone 39)
VRA-VRZ China (People's Republic of) - Hong Kong (Also See VS6)**
VRA-VRZ Now China (ITU Zone 33,42,43,44 CQ Zone 23,24)
VR2 Hong Kong (ITU Zone 44 CQ Zone 24)
VR6 Was Pitcairn Is — Now China — See VP6 For new Pitcairn Is Prefix
VSA-VSZ United Kingdom of Great Britain and Northern Ireland (Also See VR)
..... VS6 Hong Kong (ITU Zone 44 CQ Zone 24)
VTA-VWZ India (Republic of) (See Also 8T-8Y, AT-AW)
..... VT India (ITU Zone 41 CQ Zone 22)

..... VU India (ITU Zone 49 CQ Zone 26)
..... VU7 Laccadive Is (ITU Zone 41 CQ Zone 22)
..... VV India (ITU Zone 41 CQ Zone 22)
VXA-VYZ Canada (Also See CA-CK, CY-CZ, VA-VE -VG, VO,
..... VX Canada v(ITU Zone 02,03,04,09,75 CQ Zone 01 - 05)
..... VY Canada (ITU Zone 02,03,04,09,75 CQ Zone 01 - 05)
..... VY1 Yukon (ITU Zone 01,02 CQ Zone 01)
..... VY2 PrinceEdward Is (ITU Zone 09 CQ Zone 05)
..... VY9 Prince Edward Is (ITU Zone 09 CQ Zone 05)
VZA-VZZ Australia See VK for Districts (Also See AX, VH - VK - VN)
..... VZ Australia (ITU Zone 55,58,59 CQ Zone 29,30)

WAA-WZZ United States of America Also See AA thru AL, N, and K
W United States (ITU Zone 6,7,8 CQ Zone 3,4, 5)

The first one or two letters identify the country the station is licensed in.

The prefix letters used for stations in the United States are...
A (AA-AL), e.g., AC6V
K (KA-KZ), e.g., K6DX, KC6UQH
N (NA-NZ), e.g., N6KI
W (WA-WZ), e.g., W6AM

The number indicates the U.S. district of license.
The U.S. is broken down into 10 regions (0-9). See Below.
(NOTE: US Amateurs may keep their calls when moving to another
district — so a W1 may in fact reside in California (W6)

The suffix (last one, two, or three letters) are unique.

Callsigns may reflect the license class, although many keep a lesser callsign when upgrading.
A 2-by-3 [two letters, a number, and three letters] callsign typically belongs to a Novice or Technician operator, e.g., KC6UQH. Also some of the newer General operators have a 2-by-3 call.

A 1-by-3 callsign usually belongs to older Technician and General class operators. e.g., N6AEK. These callsigns were 'used up' in the sequential callsign system, so newer Tech and General operators are now receiving 2-by-3 calls.

A 2-by-2 call usually belongs to an Advanced or a newer Extra class operator.
An Extra 2-by-2 usually starts with an 'A'. e.g., AC6HZ. An Advanced 2-by-2 usually starts with a 'K', 'N', or 'W'. e.g., KB5MU

A 1-by-2 or 2-by-1 call usually belongs to an older Extra class operator. e.g., N6ST, AC6V. When these sequential callsigns were 'used up', the Extra class operators started receiving 2-by-2 calls starting with the AA block.

A 1-by-1 callsign is very special. It is assigned to a special event station for a short period of time. They are not assigned to individual operators as their regular callsign. e.g., W0W
W0 Colorado (ITU Zone 7 CQ Zone 4)
W0 Iowa (ITU Zone 7 CQ Zone 4)
W0 Kansas (ITU Zone 7 CQ Zone 4)
W0 Minnesota (ITU Zone 7 CQ Zone 4)
W0 Missouri (ITU Zone 7 CQ Zone 4)
W0 Nebraska (ITU Zone 7 CQ Zone 4)
W0 North Dakota (ITU Zone 7 CQ Zone 4)
W0 South Dakota (ITU Zone 7 CQ Zone 4)
W1 Connecticut (ITU Zone 08 CQ Zone 5)
W1 Maine (ITU Zone 08 CQ Zone 5)
W1 Massachusetts (ITU Zone 08 CQ Zone 5)
W1 New Hampshire (ITU Zone 08 CQ Zone 5)
W1 Rhode Island (ITU Zone 08 CQ Zone 5)
W1 Vermont (ITU Zone 08 CQ Zone 5)
W2 New Jersey (ITU Zone 08 CQ Zone 5)
W2 New York (ITU Zone 08 CQ Zone 5)
W3 D.C. (ITU Zone 08 CQ Zone 5)
W3 Delaware (ITU Zone 08 CQ Zone 5)
W3 Maryland (ITU Zone 08 CQ Zone 5)
W3 Pennsylvania (ITU Zone 08 CQ Zone 5)
W4 Alabama (ITU Zone 08 CQ Zone 4)
W4 Florida (ITU Zone 08 CQ Zone 5)
W4 Georgia (ITU Zone 08 CQ Zone 5)
W4 Kentucky (ITU Zone 08 CQ Zone 4)
W4 North Carolina (ITU Zone 08 CQ Zone 5)
W4 South Carolina (ITU Zone 08 CQ Zone 5)
W4 Tennessee (ITU Zone 08 CQ Zone 4)
W4 Virginia (ITU Zone 08 CQ Zone 5)
W5 Arkansas (ITU Zone 7 CQ Zone 4)
W5 Louisiana (ITU Zone 7 CQ Zone 4)
W5 Mississippi (ITU Zone 08 CQ Zone 4)
W5 New Mexico (ITU Zone 7 CQ Zone 4)
W5 Oklahoma (ITU Zone 7 CQ Zone 4)
W5 Texas (ITU Zone 7 CQ Zone 4)
W6 California (ITU Zone 6 CQ Zone 3)
W7 Arizona (ITU Zone 6 CQ Zone 3)
W7 Idaho (ITU Zone 6 CQ Zone 3)
W7 Montana (ITU Zone 6 (excluding Montana east of 110W) (ITU Zone 7 Montana
east of 110W), CQ Zone 4)
W7 Nevada (ITU Zone 6 CQ Zone 3)
W7 Oregon (ITU Zone 6 CQ Zone 3)
W7 Utah (ITU Zone 6 CQ Zone 3)
W7 Washington (ITU Zone 6 CQ Zone 3)
W7 Wyoming (ITU Zone 6 (excluding Wyoming east of 110W) (ITU Zone 7 Wyoming
east of 110W), CQ Zone 4)
W8 Michigan (ITU Zone 08 CQ Zone 4)
W8 Ohio (ITU Zone 08 CQ Zone 4)
W8 West Virginia (ITU Zone 08 CQ Zone 5)
W9 Illinois (ITU Zone 08 CQ Zone 4)
W9 Indiana (ITU Zone 08 CQ Zone 4)
W9 Wisconsin (ITU Zone 08 CQ Zone 4)
WA-WZ United States
WH0 Mariana Is (ITU Zone 64 CQ Zone 27)
WH1 Baker Howland (ITU Zone 61 CQ Zone 31)
WH2 Guam (ITU Zone 64 CQ Zone 27)
WH3 Johnston Is (ITU Zone 61 CQ Zone 31)
WH4 Midway Is (ITU Zone 61 CQ Zone 31)
WH5 Palmyra Is (ITU Zone 61,62 CQ Zone 31)
WH5K Kingman Reef (ITU Zone CQ Zone)
WH6 Hawaii (ITU Zone 61 CQ Zone 31)
WH7 Kure Is (ITU Zone 61 CQ Zone 31)
WH7K Kure Is (ITU Zone 61 CQ Zone 31)
WH8 American Samoa (ITU Zone 62 CQ Zone 32)
WH9 Wake Is (ITU Zone 65 CQ Zone 31)
WL Alaska (ITU Zone 1,2 CQ Zone 01)
WP1 Navassa Is (ITU Zone 11 CQ Zone 08)
WP2 Virgin Is (ITU Zone 11 CQ Zone 08)
WP3 Puerto Rico (ITU Zone 11 CQ Zone 08)
WP4 Puerto Rico (ITU Zone 11 CQ Zone 08)
WP5 Desecheo Is (ITU Zone 11 CQ Zone 08)

X5 Bosnia Herzegovina (ITU Zone 28 CQ Zone 15) Unofficial ?

XAA-XIZ Mexico (Also See 4A-4C, 6D-6J)
XA to XH Mexico (ITU Zone 10 CQ Zone 06)

XE1 Colima, Distrito Federal, Guanajuato, Hidalgo, Jalisco, Mexico, Michoacan, Morelos, ... Nayarit, Puebla, Queretaro, Tlaxcala, Veracruz
XE2 Aguascalientes, Baja California Norte, Baja California Sur, Chihuahua,..... Coahuila, Durango, Nuevo Leon, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, Zacatecas
XE3 Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Yucatan
XF1 Pacific Islands
XF2 Caribbean islands - west of 90∞W
XF3 Caribbean islands -east of 90∞W
XF0 Revilla Gigedo (ITU Zone 10 CQ Zone 06)
XF4 Revilla Gigedo (ITU Zone 10 CQ Zone 06)
XJA-XOZ Canada (Also See CA-CK, CY-CZ, VA-VE - VG, VO, VX-VY)
..... XJ to XO Canada (ITU Zone 02,03,04,09,75 CQ Zone 01 - 05)
XPA-XPZ Denmark (Also See 5P-5Q, OU - OZ)
..... XP Denmark (ITU Zone 18 CQ Zone 14)
XQA-XRZ Chile (Also CE , 3G)
..... XQ Chile (ITU Zone 14, 16 CQ Zone 12)
..... XQ0X San Felix (ITU Zone 12 CQ Zone 12)
..... XQ0Y Easter Island (ITU Zone 63 CQ Zone 12)
..... XQ0Z Juan Fernandez (ITU Zone 12 CQ Zone 12)
..... XR Chile (ITU Zone 14, 16 CQ Zone 12)
..... XR0Y Easter Island (ITU Zone 63 CQ Zone 12)
..... XR0Z Easter Island (ITU Zone 63 CQ Zone 12)
XSA-XSZ China (People's Republic of) (Also See 3H-3U, BY , VR)
..... XS China (ITU Zone CQ Zone 23,24)
XTA-XTZ Burkina Faso
..... XT Burkina Faso (ITU Zone 46 CQ Zone)
XUA-XUZ Cambodia (Kingdom of)
..... XU Kampuchea (ITU Zone CQ Zone 35)
XVA-XVZ Viet Nam (Socialist Republic of) (Also See 3W)
..... XV Vietnam (ITU Zone 49 CQ Zone 26)
XWA-XWZ Lao People's Democratic Republic
..... XW Laos (ITU Zone 49 CQ Zone 26)
XXA-XXZ Portugal
..... XX Macao (ITU Zone 44 CQ Zone 24)
XYA-XZZ Myanmar (Union of)
..... XY Burma (ITU Zone 49 CQ Zone 26)
..... XZ Burma (ITU Zone 49 CQ Zone 26)

Y2A-Y9Z Germany (Federal Republic of)
..... Y2 to Y9 Germany (ITU Zone 28 CQ Zone 14)
..... Y90 Antarctica (ITU Zone CQ Zone)
YAA-YAZ Afghanistan (Islamic State of) (Also See T6)
..... YA Afghanistan (ITU Zone 40 CQ Zone 21)
YBA-YHZ Indonesia (Republic of)
(Also See 7A-7I, 8A-8I, JZ, PK-PO)
..... YBA to YHZ Indonesia (ITU Zone 51 CQ Zone 28)
.... YB1 West Java
.... YB2 Central Java, Yogyakarta
.... YB3 East Java
.... YB4 South Sumatra, Lampung, Jambi, Bengkulu
.... YB5 West Sumatra, Riau
.... YB6 Aceh, North Sumatra
.... YB7 South Borneo, Central Borneo, East Borneo, West Borneo
.... YB8 South Celebes, Southeast Celebes, Central Celebes, North Celebes, Maluku
.... YB9 Bali,Western Islands of the Sonda, Eastern Islands of the Sonda, West Timor, West New Guinea
.... YB0 Jakarta

YIA-YIZ Iraq (Republic of) (Also See HN)
..... YI Iraq (ITU Zone 39 CQ Zone 21)
YJA-YJZ Vanuatu (Republic of)
..... YJ Vanuatu (ITU Zone 56 CQ Zone 32)
YKA-YKZ Syrian Arab Republic (Also See 6C)
..... YK Syria (ITU Zone 39 CQ Zone 20)
YLA-YLZ Latvia (Republic of)
..... YL Latvia (ITU Zone 29 CQ Zone 15)
.... 2x2 calls with prefix YL1 club stations
.... 2x2 calls with prefix YL2 and YL3 1st and 2nd license class individuals
.... 2x3 calls with prefix YL2G and YL3G 3rd Ë 4th license class individuals
.... YL#xx/R and YL#Rxx repeaters
YMA-YMZ Turkey (Also See TA -TC)
..... YM Turkey (ITU Zone 39 CQ Zone 20)
YNA-YNZ Nicaragua (Also See H6 - H7, HT)
..... YN Nicaragua (ITU Zone 11 CQ Zone 07)
.... YN1 Managua
.... YN2 Granada
.... YN3 Leon
.... YN4 Chontales, Rio San Juan, Zelaya
.... YN5 Carazo, Rivas
.... YN6 Chinandega
.... YN7 Masaya
.... YN8 Esteli, Madriz, Nueva Segovia
.... YN9 Boaco, Jinotega, Matagalpa
.... YN0 Special Event & Club Stations
YOA-YRZ Romania
..... YO to YR Romania (ITU Zone 28 CQ Zone 20)
.... YO2 Arad-AR, Caras Severin-CS, Hunedoara-HD, Timis-TM
.... YO3 Bucuresti-BU
.... YO4 Braila-BR, Constanta-CT Galati-GL, Tulcea-TU, Vrancea-VN
.... YO5 Alba-AB, Bihor-BH, Bistrita Nasaud-BN, Cluj-CJ, Maramures-MM, Salaj-SJ, .Satu Mare-SM
.... YO6 Brasov-BV, Covasna-CV, Harghita-HG, Mures-MS, Sibiu-SB
.... YO7 Arges-AG, Dolj-DJ, Gorj-GJ, Mehedinti-MH, Olt-OT, Vilcea-VL
.... YO8 Bacau-BC, Botosani, BT, Iasi-IS, Neamt-NT, Suceava-SV, Vaslui-VS
.... YO9 Buzau-BZ, Calarasi-CL, Dimbovita-DB, Giurgiu-GR, Ialomita-IL, Prahova-PH, Teleorman-TR
.... YO0 Special Event Stations
.... YO0K Club Stations
YSA-YSZ El Salvador (Republic of) (Also See HU)
..... YS El Salvador (ITU Zone 11 CQ Zone 07)
.... YS1 San Salvador
.... YS2 Santa Ana
.... YS3 San Miguel
.... YS4 La Libertad
.... YS5 Chalatenango, Cuscatlan
.... YS6 Cabanas, La Paz, San Vicente
.... YS7 Ahuacapan, Sonsonate
.... YS8 Morazan, La Union, Usulutan
.... YS9 Foreign Operators
.... YS0 Portable Stations
YTA-YUZ Yugoslavia (Federal Republic of)
(also See 4N-4O, Z3)
..... YT Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YT1 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YT4 Bosnia Herzegovina (ITU Zone 28 CQ Zone 15)
.... YT5 Macedonia (ITU Zone 28 CQ Zone 15)
.... YT6 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YT7 Yugoslavia (ITU Zone 28 CQ Zone 15)

.... YT8 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YU Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YU1 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YU4 Bosnia Herzegovina (ITU Zone 28 CQ Zone 15)
.... YU5 Macedonia (ITU Zone 28 CQ Zone 15)
.... YU6 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YU7 Yugoslavia (ITU Zone 28 CQ Zone 15)
.... YU8 Yugoslavia (ITU Zone 28 CQ Zone 15)

YVA-YYZ Venezuela (Republic of) (Also See 4M)
..... YV Venezuela (ITU Zone 12 CQ Zone 09)
.... YV1 Falcon, Trujillo, Zulia
.... YV2 Barinas, Merida, Tachira
.... YV3 Lara, Portuguesa, Yaracuy
.... YV4 Aragua, Carabobo, Cojedes
.... YV5 Distrito Federal, Guarico, Miranda
.... YV6 Anzoategui, Bolivar
.... YV7 Nueva Esparta, Sucre
.... YV8 Monagas, Terr. Fed. Delta Amacuro
.... YV9 Apure, Terr. Fed. Amazonas
..... YV0 Aves Is (ITU Zone 11 CQ Zone 08)
..... YW Venezuela (ITU Zone 12 CQ Zone 09)
..... YX Venezuela (ITU Zone 12 CQ Zone 09)
..... YX0 Aves Is (ITU Zone 11 CQ Zone 08)
..... YY Venezuela (ITU Zone 12 CQ Zone 09)

YZA-YZZ Yugoslavia (Federal Republic of) (also See 4N-4O, YT-YU , Z3)
..... YZ Yugoslavia (ITU Zone 28 CQ Zone 15)
..... YZ4 Bosnia Herzegovina (ITU Zone 28 CQ Zone 15)
..... YZ5 Macedonia (ITU Zone 28 CQ Zone 15)

Z2A-Z2Z Zimbabwe (Republic of)
..... Z2 Zimbabwe (ITU Zone 53 CQ Zone 38)
Z3A-Z3Z The Former Yugoslav Republic of Macedonia
..... Z3 Macedonia (ITU Zone 28 CQ Zone 15)
ZAA-ZAZ Albania (Republic of)
..... ZA Albania (ITU Zone 28 CQ Zone 15)
ZBA-ZJZ United Kingdom of Great Britain and Northern Ireland
..... ZB Gibraltar (ITU Zone 37 CQ Zone 14)
..... ZC4 UK Soverign Base (ITU Zone 39 CQ Zone 20)
..... ZD7 St Helena (ITU Zone 66 CQ Zone 36)
..... ZD8 Ascension Is (ITU Zone 66 CQ Zone 36)
..... ZD9 Tristan Da Cunha (ITU Zone 66 CQ Zone 38)
..... ZF Cayman Is (ITU Zone 11 CQ Zone 08)

ZKA-ZMZ New Zealand
ZK Cook Islands (ITU Zone 62 CQ Zone 32)

ZK1/N No Cook Is, The northern group includes islands of Pukapuka, Tongareva (or PenPen Penrhyn), Manihiki, Palmerston, Rakahanga, Suwarrow and Nassau.
The port of Avarua, in the island of Rarotonga, is the administrative center of the Cook islands.
ZK1/S So Cook Is, The southern group includes the islands of Rarotonga, Aitutaki, Atiu, Mangaia, Mauke, Mitiaro, Manuae and Takutea.

ZK2 Niue Is (ITU Zone 62 CQ Zone 32)
ZK3 Tokelaus (ITU Zone 62 CQ Zone 31)
ZL New Zealand (ITU Zone 60 CQ Zone 32)
..... ZL1 North Island, north: Northland, Auckland, Waikato, Bay of Plenty
..... ZL2 North Island, south: Gisborne, Hawke's Bay, Manawatu-Wanganui, Taranaki, Wellington
..... ZL3 South Island, north: Nelson, Marlborough, West Coast, Canterbury
..... ZL4 South Island, south: Otago, Southland
ZL5 Antarctica Scott (ITU Zone CQ Zone)
ZL6 New Zealand — NZART (ITU Zone 60 CQ Zone 32)
ZL7 Chatham Is (ITU Zone 60 CQ Zone 32)
ZL8 Kermadec Is (ITU Zone 60 CQ Zone 32)
ZL9 Auckland Campbell (ITU Zone 60 CQ Zone 32)
ZL0 Overseas Visitirs (ITU Zone 60 CQ Zone 32)
ZM New Zealand (ITU Zone 60 CQ Zone 32)
ZM7 Chatham Is (ITU Zone 60 CQ Zone 32)
ZM8 Kermadec Is (ITU Zone 60 CQ Zone 32)
ZM9 Auckland Campbell (ITU Zone 60 CQ Zone 32)
ZNA-ZOZ United Kingdom of Great Britain and Northern Ireland (Also See 2, G , M, ZQ)

ZPA-ZPZ Paraguay (Republic of)
..... ZP Paraguay (ITU Zone 14 CQ Zone 11)
.... ZP1 Boqueron, Chaco, Nueva Asuncion
.... ZP2 Alto Paraguay, Presidente Hayes
.... ZP3 Amambay, Concepcion
.... ZP4 Canindeyu, San Pedro
.... ZP5 Asuncion
.... ZP6 Central, Cordillera, Paraguari'
.... ZP7 Caaguazu', Caazapa', Guaira'
.... ZP8 Misiones, Neembucu'
.... ZP9 Alto Parana', Itapua'
.... ZP0 Mobile & Club Stations

ZQA-ZQZ United Kingdom of Great Britain and Northern Ireland (Also See 2, G , M, ZN-ZO)

ZRA-ZUZ South Africa (Republic of) (Also See S8)
..... ZS So Africa (ITU Zone 57 CQ Zone 38)
.... ZS1 Capetown and neighborhood
.... ZS2 Cape Province, South
.... ZS3 Cape Province, North
.... ZS4 Orange
.... ZS5 Natal
.... ZS6 Transvaal
..... S8 Transkei
..... ZS2 Marion Is (ITU Zone 57 CQ Zone 38)
..... ZS3 Namibia (ITU Zone 57 CQ Zone 38)
..... ZS8 Marion Is (ITU Zone 57 CQ Zone 38)
..... ZU So Africa (ITU Zone 57 CQ Zone 38)

ZVA-ZZZ Brazil (Federative Republic of) (Also See PP-PY)
..... ZV Brazil (ITU Zone CQ Zone 11)
..... ZW Brazil (ITU Zone CQ Zone 11)
..... ZX Brazil (ITU Zone CQ Zone 11)
..... ZX0F Fer De Noronha (ITU Zone 13 CQ Zone 11)
..... ZX0S Peter Paul Rocks (ITU Zone 13 CQ Zone 11)
..... ZX0T Trindade (ITU Zone 15 CQ Zone 11)
..... ZY Brazil (ITU Zone CQ Zone 11)
..... ZY0F Fer De Noronha (ITU Zone 13 CQ Zone 11)
..... ZY0S Peter Paul Rocks (ITU Zone 13 CQ Zone 11)
..... ZY0T Trindade (ITU Zone 15 CQ Zone 11)
..... ZZ Brazil (ITU Zone CQ Zone 11)
..... ZZ0F Fer De Noronha (ITU Zone 13 CQ Zone 11)
..... ZZ0S Peter Paul Rocks (ITU Zone 13 CQ Zone 11)
..... ZZ0T Trindade (ITU Zone 15 CQ Zone 11)

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This the fifth and final section of the Long DX List. Keep this comprehensive list, commenced with the Jan/Feb issue. (Back issues available – 'phone (03) 527 7744) You now have the most comprehensive DX list we have seen ... thanks to 20 years work by Rod Dinkins, AC6V

Jos Hahn tells you some more about.....

DTMF DECODERS AND THINGS

and says "you just have to know about these things"

When I started writing this CG column, I was under the impression, that most readers would have a sound knowledge of basic electronics, but from the reactions I am getting, it seems to me that I have to do more explaining.

I can't go into things like the difference between a PNP and NPN transistor. You just have to know these things.

There are quite a lot of requests for a noise-cancelling mike and HF pre-amps. I would prefer to finish subject by subject, therefore we will look at a few more decoders and encoders as there is plenty of feed back on them.

I will do a lot of explaining when we are doing radio frequency mods, as I think that is the right stuff for a radio magazine, surely.

I will not write about basic electricity, but will spend some time on different crystal oscillators, VCOs, PLLs etc.

You are going to get a comprehensive explanation of how a 27-28MHz radio works, going back in time from the beginning of CB until today's Delta Force.

If you would like to modify a set, I think it would be wise if you also know what you are doing.

Yes, everything can be converted, although it could be a lot of work. I know many readers are getting impatient, but please hang in there.

Now let's have a look at decoders for selective purposes. You would like to use one as a tone squelch or to access a repeater. But you also need a tone, like a roger-beep, to switch it off again.

For these things, we could make a simple decoder with one digit only, and 15 different DTMF tones can be used, except D as that is binary 0. In the circuit in FIG I uses a relay, but of course, that is up to you. With a relay you can switch off a loudspeaker or the TX of a repeater quite easily.

Let's start our communication with tone # and switch it off with any other tone. # is binary 12, hence 8 + 4 are high, 1 + 2 are low. We'll make a small network with R1 and D1. Only with 8 and 4 high will there be voltage between R1 and R2.

There are however a few more tones with 8 and 4 high and if they bother you, we have to add an inverter, TR2. If 1 and 2 are low, TR2 is sleeping, but with 1 or 2 high it will pull the voltage between R1 - R2 low.

TR1 is now only switched on with # and the relay is on. I have made the TOE high, so this information will stay on the outputs until another tone, not #, comes in.

On the transmitter side, you have to send a tone # when you start and another when you stop your PTT.

I promise you, this will be the last roger-beep circuit (see FIG 2). This is very much the same as the 1 digit DTMF roger-beep in the March issue.

The roger-beep time is determined by the value of R5 and C1. Pin 11 of IC1 is kept high during RB and column 1 - row 1 of the 5089 will be kept low via output 10 of IC1. Tone 1 is generated. This is our switch off tone.

The switching on is done via C5 and R12 which give a positive pulse to input 5 of IC1, and output 6 will pull row 4 - column 3 low. Tone # is made.

To prevent the microphone picking up noise during this tone, we have to switch the mike off.

I have added an extra mike amp on this diagram, TR3, and during the generation of #, output 8 of IC1 is high and TR4 will pull the collector of TR3, (the mike amp), to ground.

If your radio already has an amp or is an electret, you can use TR4 to switch it off and leave TR3, R14, C6, R13, C7 and R9 out. That's that. No more.

Back to the decoders. If you want one particular rtone to switch it on and one specific tone to switch it off, we have to select these tones.

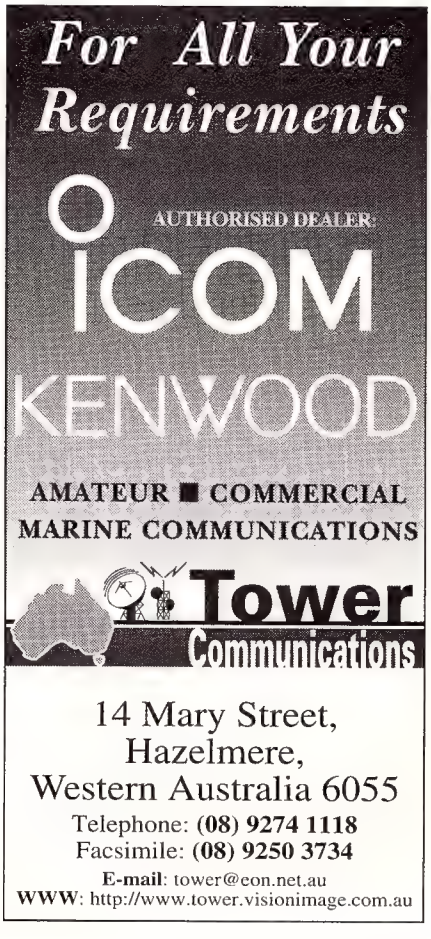
Let me do it firstly in the same primitive way (FIG 3) and then continue with the "many digit" decoders.

Lets take # to switch on and 7 for off. We have to connect the TOE with STD now, as we need only outputs during tones. We have to make a "thyristor" with TR1 and TR5.

If the base of TR1 goes high (with # only) TR5 will conduct now and the relay is switched on. Through R14 the base or TR1 will be kept high. If tone 7 comes in, Q1, Q2 and Q3 are high, Q4 is low. I invert Q4 with TR3 and the base of TR4 is high. The base of TR1 is pulled low and TR1 and TR5 stop working.

Be honest, old fashion technology. Obviously, you can't use this if you have a lot of digits. It would be a lot easier if we would go CMOS and add a 4028 or 4514

These are very old CMOS devices, but I love them. The 4028 is BCD to decimal



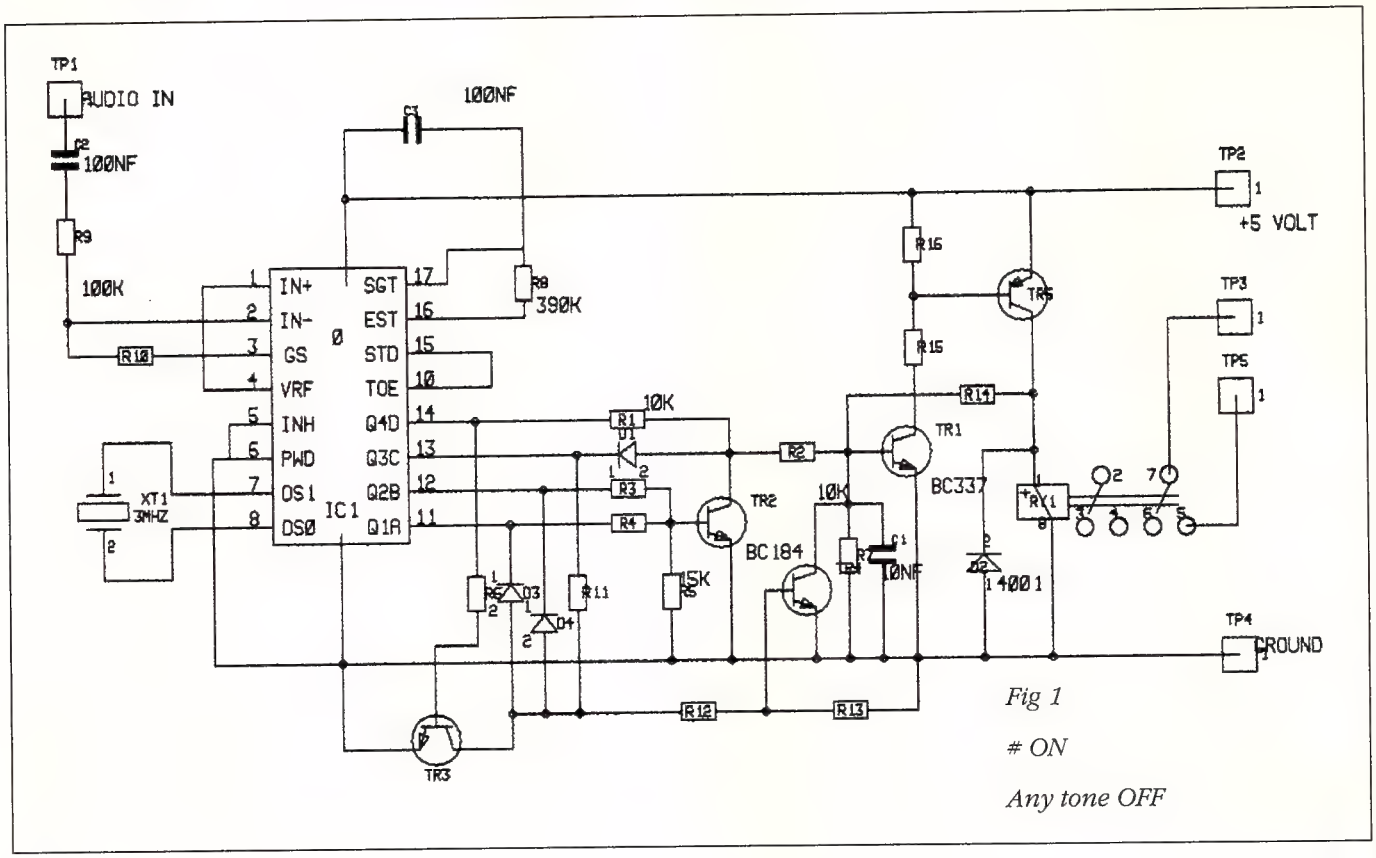


Fig 1

 # ON

Any tone OFF

decoder and the 4514 is a 4 to 16 line decoder with latch. We have thousands of the 4514 at Syncro, you are welcome to buy a few. It is ideal for DTMF decoders, every input has its own high output, except D of course, as that is binary 0 and it's output will be high without an input, can be used however with the STD output.

But that will be for next month.
Cheers Jos

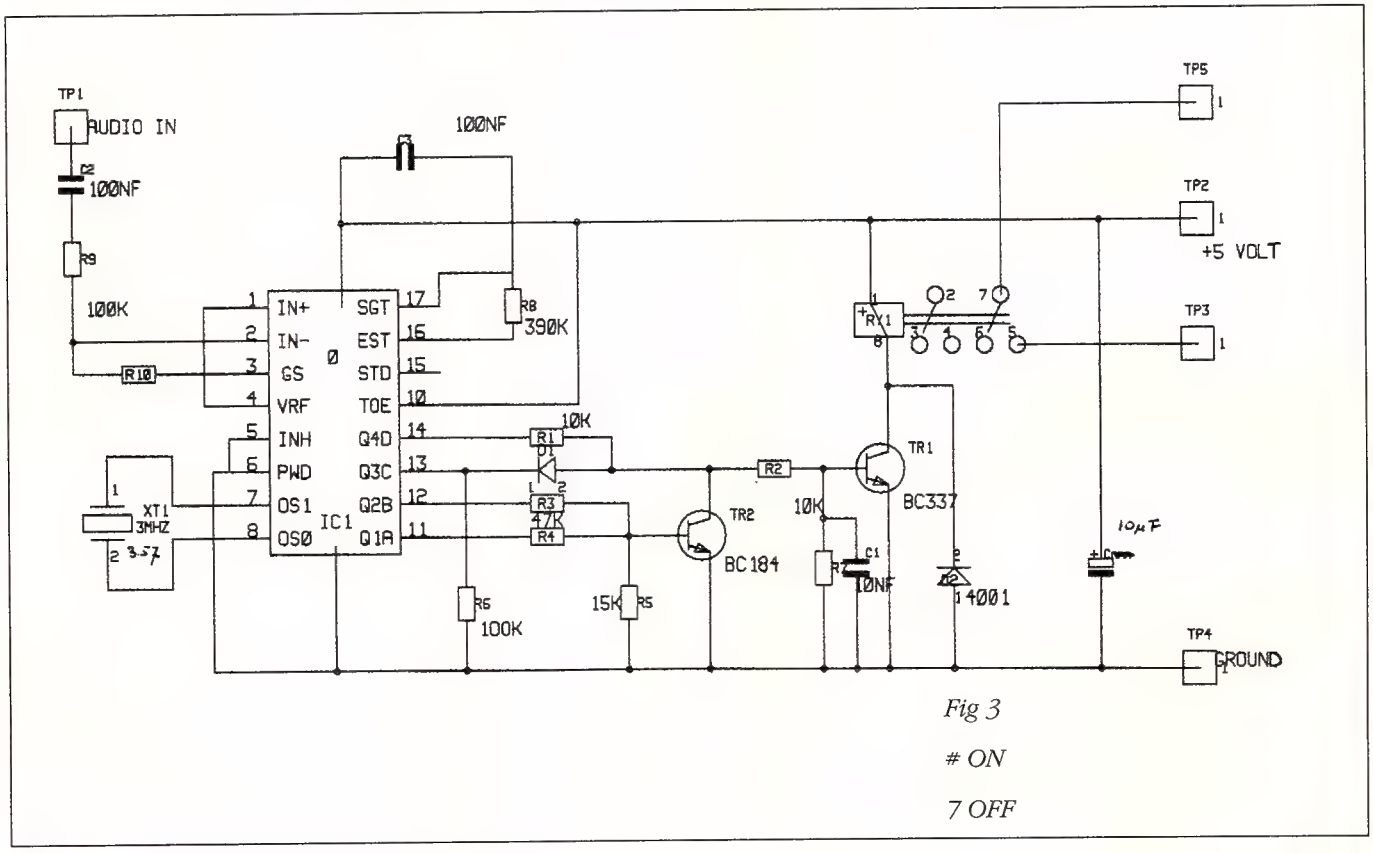
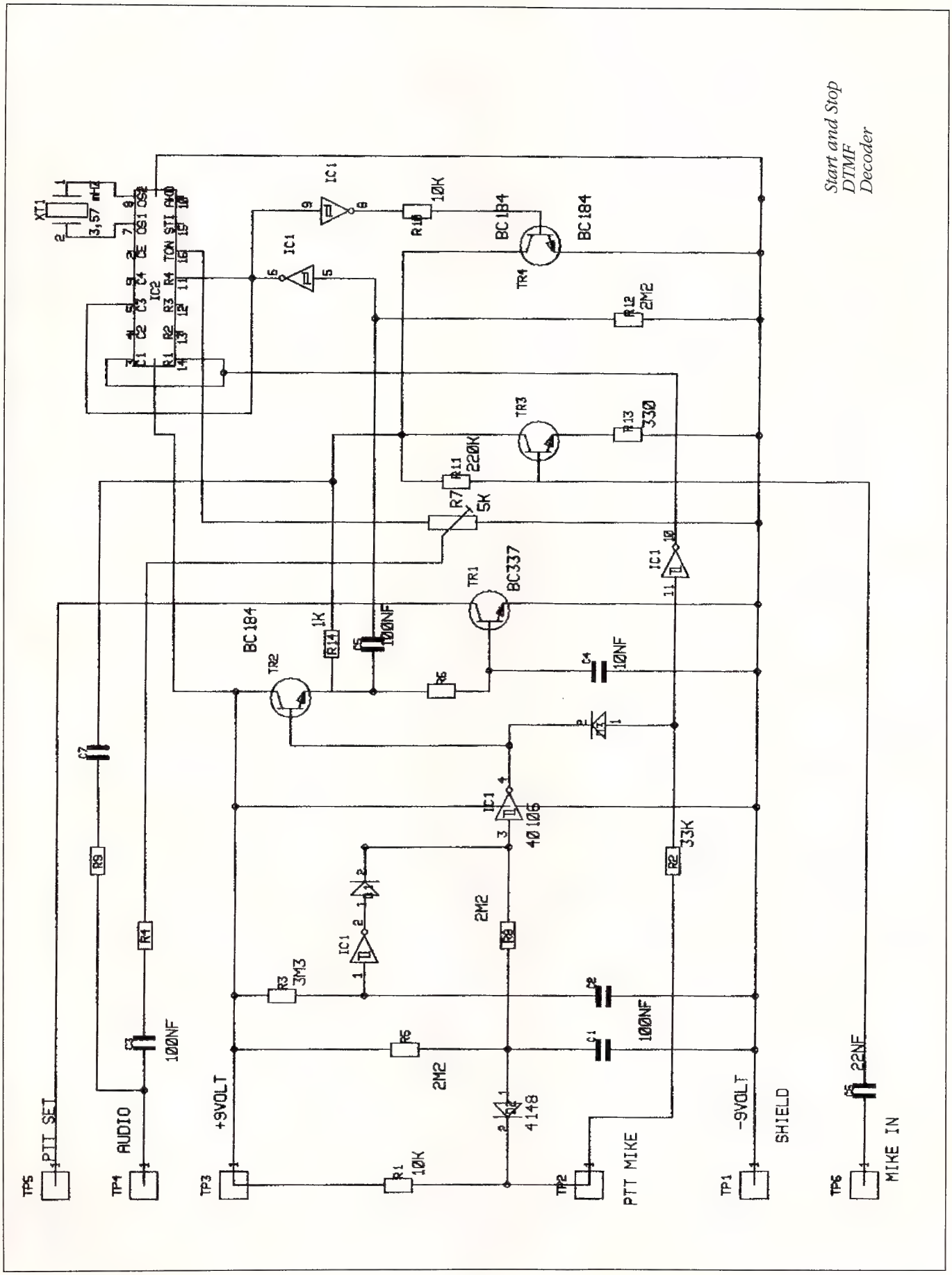


Fig 3

 # ON

7 OFF


Start and Stop
DTMF
Decoder
XT1
3,57 mHz
IC2
IC1
TR1
BC337
TR2
BC 184
TR3
TR4
BC 184
R1 10K
R2 33K
R3 3M3
R4 2M2
R5 2M2
R6
R7 5K
R8 2M2
R9
R10 10K
R11 220K
R12 2M2
R13 330
R14 1K
C1 100NF
C2 100NF
C3 100NF
C4 10NF
C5 22NF
C7
4011 06
4148
TP1 -9VOLT
TP2 PTT MIKE
TP3 +9VOLT
TP4 AUDIO
TP5 PTT SET
TP6 MIKE IN
SHIELD

KYLE communications

YOU WILL NEVER BE OUT OF CONTACT WHEN YOU DEAL WITH US!

RFDS HF RADIO

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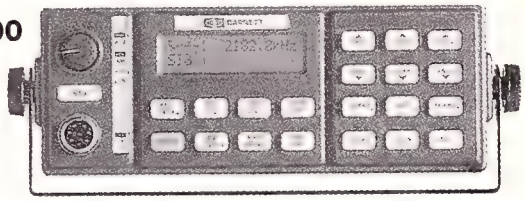

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IC-A22S
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IC-M45
IC-M59

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IC-756PRO
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IC-706Mk2G
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IC-207H
IC-T8A
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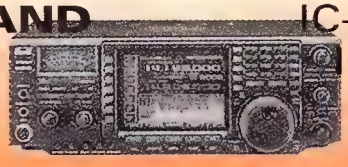
IC-Q7



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Compiled by Craig Seager, 12 Pellion Place, Bathurst NSW 2795

ABA ALLOCATES LICENCES

The Australian Broadcasting Authority has made Australian broadcasting history by approving the first licences for non-government international broadcasters to operate from Australian soil. Christian Voice (Australia) Ltd and HCJB Australia plan to deliver shortwave signals to external audiences from locations at Darwin and Kununurra WA respectively.

Applicants for international broadcasting licenses must comply with a number of criteria, including probity and corporate status. Even then, the Foreign Affairs Department has right of veto if it considers that the granting of the license may prejudice Australia's external interests.

The licenses are also governed by specific content guidelines, based on the Transborder Satellite Television Broadcasting principles developed by the Asia-Pacific Regulatory Roundtable, which ensure that external broadcasts meet the minimum standards of the country from which the broadcast is made.

The guidelines cover such matters as privacy and programs that might cause offence or hatred. In addition, they cover techniques such as the simulation of events in a way that is likely to cause alarm or is misleading, and subliminal perception.

General guidance is also provided in relation to matter broadcast for children, including advertisements produced for children and promotions in children's programs.

There is also a part that applies to news and current affairs. The guidelines also contain principles applicable to programs, including the accurate presentation of matter; representing opinions fairly; clearly distinguishing between factual material, simulation, and commentary and analysis; and treating with sensitivity images of, or interviews with, bereaved people and survivors and witnesses of traumatic incidents.

In addition, the guidelines specify that programs should be impartial and balanced. Also, that warnings should be given before matter is broadcast if it is likely to offend or cause distress.

Christian Voice (Australia) Ltd proposes to deliver a range of programs including subjects including music, entertainment, news, health, educational and general-interest programs alongside Christian training and teaching.

The transmissions, in Hindi, Chinese and English will go out from the former Radio Australia site at Cox Peninsula, near Darwin. Test broadcasts, including relays of Christian Voice's African service, have already been widely heard on frequencies such as 17,775 and 21,680 kHz during our local daytime period.

For the "A01" transmission period, registrations with the HFCC for the facility are:

9720kHz	1700-2100z
9865kHz	2100-0000z
11,890kHz	1700-1900z
13,730kHz	1400-1700z
13,775kHz	0900-1400z
13,795kHz	1200-1700z
17,775kHz	0000-0300z
17,820kHz	0700-0900z
17,825kHz	1000-1200z
21,680kHz	0000-0900z

HCJB Australia's new complex at Kununurra is still in the construction phase, with the commencement date subject to further funding and strategic direction from the parent body, which also operates from Quito Ecuador.

Proposed target areas include South Asia and the Pacific, with possible expansion to East and Southeast Asia in the future.

PUBLICATION NEWS

The 44-year-old Danish Shortwave Clubs International, which boasts members in 40 countries, has just published the 3rd Edition of its annual Domestic Broadcasting Survey. Once again the DBS incorporates the long-established Tropical Bands Survey, a standard reference for low-frequency Dxers.

The 44-page booklet covers all active stations broadcasting to a domestic audience or relaying such broadcasts to compatriots abroad in the shortwave spectrum of 2200-30,000kHz. Active clandestine stations are also included.

This new survey is based on official sources and DX bulletins, with each of the entries checked by DSWCI monitors around the world throughout the period May 2000-April 2001. Stations confirmed as being active are marked with an "A" (Regular) or "B" (Sporadic) in the list. "C" means "Likely inactive".

A unique feature is a 'log' column, which shows the last date on which a particular station was reported, overcoming a frequent criticism of commercial publications which continue to list long-inactive outlets for years after their demise.

The A-4 size DBS-3 is available both in electronic and printed form. Further information from: DSWCI, c/o Bent Nielsen, Egekrogen 14, DK 3500 Vaerloese, Denmark

Airmail cost is US$10, GBP 6, DEM 20, DKK 75 or 14 International Reply Coupons a copy.

The e-mail version (in PDF format) is available for USD 3, GBP 2, DEM 8, DKK 25 or 5 IRC.

TAXI FOR HIRE!

Very much like a taxi, Deutsche

Telekom's J¸lich transmitter site appears to be available to allcomers, with international broadcasters large and small taking advantage of the modern facility for worldwide propagation of their message.

You'll need a fairly detailed atlas to locate J¸lich on the map. Just cast your eye to the extreme west of Germany, about halfway between Cologne and the Belgian border.

Cologne (K^ln) is of course the current base of Radio Deutsche Welle, Germany's international voice and understandably, a major user of J¸lich's transmitters. The transmitting complex was originally constructed in 1956 to accommodate the growing Deutsche Welle schedule, however most DW transmissions have been moved to the more powerful Wertachtal site, which houses 16 500 kW transmitters, in addition to strategically placed relay locations in other countries. German reunification also saw the former Radio Berlin International facility at Nauen come on line, further freeing up spare capacity at J¸lich. Modernised in 1993, J¸lich boasts 99.9 per cent 24-hour availability to its clients, with various program delivery options (tape, satellite, terrestrial), and also liaises with the HFCC for optimum frequency choice.

Current equipment complement includes 42 antennas, covering Europe, Africa, the Americas, East Asia and the Middle East, fed by just on a dozen 100kW transmitters. These are capable of AM and SSB, and utilise audio processing techniques.

HERE AND THERE

The Voice of America has a new frequency for the double sideband airing of its weekly Communications World segment. Listeners may now tune into 10,869kHz

VOA THAI BACKFLIP?

A flood of letters from listeners, academics and representations at government level may result in the Voice of America reversing a recent decision to close its Thai language service.

VOA Thai was to end in early August as a result of budget cuts, which have seen the station's priorities realigned over recent months. However more than 1000 letters of protest have been received, leading to a review of this latest decision.

Thai Foreign Minister, Surakiart Sathirathai, has expressed concern to US Secretary of State Colin Powell, claiming that the move is further evidence of Thailand's diminishing importance to the United States. Prime Minister Chuan Leekpai, and the King of Thailand's private secretary Arsa Sarasin have also indicated views on the issue.

A spokesman for the Board of International Broadcasting (IBB) was quoted as saying that the board was unaware the service attracted such a wide variety of listeners. The board would review its decision as it now believed the service had a role to play in Thai society. If the service was to continue, its listenership would be assessed at regular intervals.

The Thai language service, which began in 1942 on shortwave, and expanded to 18 stations on AM and FM in 1988, has an annual budget of US$400,000. US officials have also expressed interest in future co-operation with the Foreign Ministry by broadcasting some VOA programmes over the ministry's new FM station.

Thailand has a reasonable amount of leverage in these matters. The IBB operates a major transmitting facility on Thai soil, near Udorn Thani, for broadcasts to Asia.

VATICAN UPDATE

Vatican Radio has halved its broadcasting hours on mediumwave 1530 kHz, programming director Fr Federico Lombardi announced. This move is in answer to concerns that the station's transmissions may be a health hazard.

Listed at 600 kW, the 1530kHz transmitter is now only active for seven hours daily, instead of the previous 14 hours. Diplomatic moves have succeeded in achieving a stay of execution for Vatican Radio, after threats from Italian Environment Minister Bordon that the station's electricity supply would be shutdown if the broadcaster did not comply with Italian law dictating safe levels of electromagnetic radiation. The fate of Vatican Radio still remains in the balance, with increased activism in evidence from residents living near the Santa Maria di Galeria transmitter site.

The spokesman for a local group of people protesting against the pollution was uncompromising. "The government has given our children an Easter egg; the surprise inside is another electromagnetic caress from the Pope," he said. "In the meantime the Italian law continues to be violated daily and with impunity.",

Anecdotes evidencing the extent of the problem continue to be rolled out by the press. Reports of local farmers hearing hymns humming through the steel in their barns, or special coatings needing to be placed the trains to prevent interference with the railway systems, are the latest to be published.

Traditional Easter parades this year featured some crucifixes shaped as antennas, to bring further attention to the issue. For the moment at least, Vatican Radio's broadcasts to Asia, Australia and New Zealand are as follows:

Start Time	Languages	Frequencies
Days 0040z	Hindi, Tamil, Malay, English Daily 0400z	9650, 12,055kHz Arabic 9645, Daily 0530z Latin
11,715kHz Mass Daily 0600z	15,595kHz Italian, French, English Weekdays 0645z	15,595kHz Arabic Weekdays 1000z Sunday/ Holydays 1130z Fridays 1200z Daily
15,595kHz Angelus English Mass Italian 1230z	15,595, 21,850kHz 15,595, 17,515kHz 15,595kHz Chinese Mass Saturdays 1230z	17,515, 21,620kHz Chinese 17,515, Not Saturdays 1315z Daily 1450z
21,620kHz Vietnam Hindi, Tamil, Malay, Eng Daily 1530z	12,055, 17,515kHz 12,065,13,765,15,235kHz Arabic Daily 1550z Saturdays 1600z	11,625, 15,595kHz English Mass 12,065, French, English
13,765, 15,235kHz		

on Saturdays, in lieu of 6873kHz. Your choice of upper or lower sideband for best results!

LRA36, Radio Nacional San Gabriel, at Base Esperanza in the Argentine Antarctic, is back on air. John Schache (Bathurst NSW) reports this one with weak audio on 15,475.52kHz at around 2045z. Programming is in Spanish, but don't let that be an obstacle to hearing the only shortwave broadcast operation from the Antarctic.

Radiostansiya Tikiy Okean (Radio Station Pacific Ocean) is one of the lesser-known operations out of Russia, and in fact until recently was thought to have closed down. Australian listeners can hear this Vladivostok-based station on 12,070kHz from 0715z sign-on, using a transmitter at Khabarovsk in Siberia. Radio Thailand's home service channel of 4830kHz has recently been carrying English language programming, best heard here from 1130z fade-in until past 1300z. This 60-m band frequency has traditionally carried the Thai service, in parallel with 6070 and 7115kHz, and the English content is thought to be targeted at tourists or English-speaking residents. The external service of Radio Thailand has popped up on 21,795kHz from 0530-0600z, and although beamed towards Europe, is giving good coverage here.

Costa Rica's Radio for Peace International has made yet another frequency change, and is now observed on 7445kHz, replacing adjacent 7450kHz until sign-off at 0800z. 15,049kHz was reactivated in mid-April (noted at 0000z), but at the time of writing seems to have once again disappeared, indicating further technical problems at the station. Those seeking morning reception of RFPI might like to try 21,815kHz USB, usually a safe bet from around 2200z.

Polish Catholic station Radio Maryja is providing useful signals on 15,455kHz from sign-on at 0500z, using a transmitter located at Samara in Russia. Another opportunity to hear Radio Maryja is on 7380kHz from 1930-2200z or on 12,010kHz 1500-1930z, also via Samara.

It has been some years since the Broadcasting Service of the Kingdom of Saudi Arabia has had a regular English service, but presently it is possible to catch 10 minutes or so of English from just before the French program commences at 0800z on 21,600kHz. It is apparent that the program source is a local FM service, and the BSKSA has taken to warming up the shortwave transmitter with the tail-end of their English segment.

EVEREST ON THE AIR

Everest Radio is one of the newer operations on shortwave, and broadcasts in Nepalese from 2030-2130z on 7235kHz. One might expect that such a station would transmit from somewhere high in the Himalayas, but in fact it uses the facilities of Austrian Radio at Moosbrun.

The station is on air four times a week, Saturday, Sunday, Monday and Tuesday and its stated purpose is to inform Nepalese people around the world about events in their home country, as well as to encourage foreign investment in Nepal.

Craig Seager is a long-time shortwave broadcast enthusiast and commentator, and was awarded Life Membership of the Australian Radio DX Club Inc in 1988. He welcomes reader contributions and comment to cseager@ix.net.au.

US SCHEDULES

George Jacobs and Associates serve as consultant engineers to a number of private US shortwave operations, co-ordinating frequency usage - and from time to time also brokering sales. Here is a selection of schedules for some of the more interesting GJA client broadcasters:

KHBN, Palau (Gospel, various languages)

9955kHz	0800-1800z	South Asia
9955kHz	2200-0000z	Southeast Asia
9965kHz	0700-1900z	China
9965kHz	2200-0000z	China
9985 kHz	0700-1600z	Korea/Japan
9985kHz	2100-2400z	Korea/Japan
13,840kHz	1100-1900z	South Asia
15,725kHz	0700-1100z	South Asia

KTBN, Salt Lake City Utah (Gospel, English)

7510kHz	0100-1500z	Eastern North America
15,590kHz	1500-0100z	North America

WBCQ, Kennebunk Maine (Commercial/Religious, English)

7415kHz	2000-1000z	Southern North America
9335kHz	1600-0600z	Southern North America
17,495kHz	1300-0200z	Southern North America

WHRA, Greenbush Maine (Gospel, English)

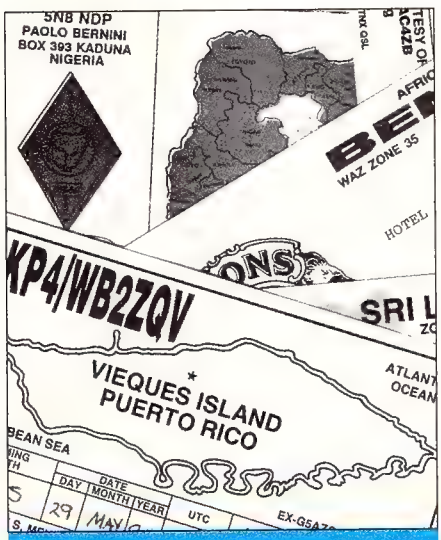
7580kHz	2200-0500z	North America, Middle East
11,730kHz	0500-1000z	Central & West Africa
17,650kHz	1500-2200z	Central & West Africa

WRNO, New Orleans (Commercial/Gospel, English)

7355kHz	2300-0300z	Eastern North America
7395kHz	0300-1500z	Eastern North America
7395kHz	1500-2300z	Eastern North America/Europe
15,420kHz	1500-2300z	Eastern North America/Europe

As an aside, there have been reports that WRNO Worldwide shortwave has been sold to a non-profit religious group, whose directors include a citizen of Zimbabwe and a citizen of Australia.

The New Orleans operation was one of the first attempts to create a viable commercial shortwave operation, and the brainchild of Joseph Costello III, an entrepreneur (now deceased) who at the time operated the successful WRNO-FM. The new owner is said to be the Fort Worth-based Good News World Outreach, which will take over from attorney Ashton Hardy, which has been administrating the operation as executor.



DX & BAND REPORT

By Jim Smith,
VK9NS
PO Box 90, Norfolk Island,
South Pacific 2899

The DX scene has been very busy since the last column. It was good to hear VK9M, Mellish Reef activated again by the VK Group preparing for a later, larger DXpedition to this tough area. VK9ML was certainly very active and I was sorry I missed a 6-metre QSO with them, but never really heard them on this band. The pile-ups were certainly large.

Then Pedro, HK3JJH has been hammering away giving Malpelo to the needy, signing HK3JJH/HK0M, and very active on several different bands.

As I write this DX world is gearing up for another DXpedition to TX0, Chesterfield Reef and I am sure there will be many DXers still needing this one. There have been changes in the operators as a couple of DXers who were to be part of the team have dropped out. However by the time you read this the operation will be history.

Although not strictly HF of course - I must comment on the wonderful recent 6m conditions since the last column. I was not able to be on as much as I would have liked but nevertheless have made many very good DX QSOs.

I had a problem with my IC756 LCD screen and I would like to thank ICOM (Australia) for getting a replacement screen to me very quickly.

The changing of the screen is another story but the rig looks just like new and I use it a lot on 6m.

The symptom by the way was a 'streaky' LCD screen full of horizontal blue lines - annoying to say the least.

The ARRL DXCC Yearbook 2001 came in the mail the other day and this is as good a place as any to start this DX column.

There are no prizes for writing (again) that the Top 10 Needed Countries are:

1.	P5	North Korea
2.	BS7H	Scarborough Reef
3.	E4	Palestine
4.	FO0/A	Austral Island
5.	FO0/M	Marquessas
6.	H40	Temotu Province
7.	BV9P	Pratas Island
8.	VU4	Andaman and Nicobar
9.	70	Yemen
10.	A5	Bhutan

However it should be noted that this list is generated from the ARRL DXCC Dbase which consists of some 21,000 individual records - give or take a few. They have been sampled to find the countries (entities) with the fewest recent credits therefore it has some surprising results.

We would all find it hard to think that FO0/A, FO0/M, H40 are rare, and in the top few. We will all probably have these countries worked, confirmed and claimed. But, it is sad to say that in searching that ARRL DXCC DBase very few VK, ZL, Pacific stations will be found - in a way affecting this result.

We all know that P5, North Korea is at the top. I note for the record that VK9N is not even on the top 100 needed countries - this is no real surprise to Kirsti, VK9NL, or myself, VK9NS, considering our sheer level of activity over many years. Yet the pile-ups for VK9N continue!

In researching the DXCC YEARBOOK as I usually do in this column, here are some VK, ZL facts and figures.

There are three categories of DXCC, phone, CW, and mixed. The mixed category has been a blessing over the years as often a country would only be available on CW and getting on the phone was an added expense. There are numerous examples of this.

However the reverse is also true; it is very hard to work every single country on CW but Kirsti and myself only need a CW contact with P5 these days.

The DXCC listing covers many years of DXing and in my view it is important to acknowledge those (the old timers) at the top of the heap.

Even if when compared to today's actual total of valid DXCC Countries of 332 (when this list was generated) more than 50 countries no longer count. The DXCCC total is now 333.

I have looked at each of the three main DXCC listings to level 300 in each case, but this does not 'thumb a nose' at those below this total. It is well below Honor Roll Listing and as good a figure as any.

Initially I have gone down the list until the first VK, ZL and Pacific station is reached - this gives us our own personal area Top of the Heap DXer.

So the VK, ZL and Pacific standings are as follows:

MIXED: 387; K8ZO,W2AGW, W2BXA. 386; W7KH, 385; K8QJ, W1BIH. 384; K6OJ, 4SU, W3VT. 383: KH6CD*, N4SU, W3VT. 379; VK5MS*. 370; VK4LC*. 367; VK5WO, ZL4BO.

At this point we have KH6CD, VK5MS and ZL4BO at the top of the mixed table. Congratulations to all three for these great all time totals. VK5WO is level pegging with ZL4BO.

Mixed Totals: 379; VK5MS. 370; VK4LC. 367; VK5WO, ZL4BO. 364; ZL1AV, ZL2HP. 363; ZL3NS. 362; ZL3GQ. 359; ZL1AMO, ZL1ARY. 356; ZL3QN. 354; VK6LK. 350; ZL1AMN. 349; ZL1ALE. 343; VK2FH (sk). 341; VK3QI, ZL2VS. 338; VK3EW. 337; VK9NS, VK9NL. 336; VK3DYL, ZL1HY. 334; VK1ZL. 329; VK2DTH, ZL3AFT. 328: VK3OT. 327; VK3AKK. 304; VK3EUZ.

Phone: 385; W2BXA. 384; VK6RU. 379; VK5MS. 370; VK4LC. 364; VK5WO. 363; ZL3NS.

358; ZL4BO. 356; ZL3QN. 355; VK6HD. 354; VK6LK, ZL1ARY. 353; ZL1AV. 350; ZL1AMN. 349; ZL1ALE. 348; ZL1AAS, ZL3GQ. 344; ZL1AMO. 340; VK3QI. 337; VK9NS. 336; K3DYL, K3EW, VK9NL, ZL1HY. 335; VK1ZL. 333; VK5QW. 330; ZL1BOQ. 329; VK2DTH, ZL3AFT (sk). 328; AH6HY. 327; VK3AKK. 324; VK3OT. 304; VK3EUZ.

CW: 346; N4WW. 345; DJ2BW. 340; VK6HD. 336; VK9NS. 335; VK3QI, VK9NL. 325;

ZL1AMO.

My apologies if there are any errors but I have checked very carefully a couple of times.

Congratulations to all concerned in the ARRL DXCC Listing. It has taken a great deal of application to get on that list.

SPECIAL EVENT STATIONS

EN15UC - UKRAINE: This station has been very active and very loud here on 20m SSB the other morning and will be a good catch for the prefix hunters. The Ukrainian radio amateurs are commemorating the 15th anniversary of the Chernobyl Nuclear Disaster.

QSL Route: EN15UC via UR7UL.

Chesterfield Islands TX0

By the time I finish the DX and IOTA column for this issue the TX0C, Chesterfield Islands team will be very close to their destination. There has been a change in operators and the team now includes Dany, F5CW/FK8VHY; Georges, FK8FS; Daniel, FK8FU; and Philippe, FO3BM. On the way the team has been QRV as TX4A/MM and they also expect to be active on 17 and 10m.

Equipment includes one MARK-V FT-1000MP, one FT-1000MP with IC2KL and

two FT-1000Ds. The TX0C team will be active on 6 through 160 metres, both CW and SSB. There is no info about whether RTTY will be available.

QSL ROUTE: TX0C JA1BK

Marshall Islands V7

The team from Enewetok Atoll goals, in order of priority, were to: be safe, have fun, and make lots of contacts.

They feel that all three goals were accomplished with about 18,000 contacts in the log (UA0LSQ/MM was first and KN6H was last QSO) during a period of high A and K indices.

Every CQ Zone except 34 received at least one QSO and 151 different DXCC Entities were contacted. They especially wanted to work Europe because of the path difficulty and the preponderance of IOTA seekers on the continent (4441 European contacts were made.) More than 1000 QSOs were made on both 40 and 6m while 30m yielded 754 contacts.

About equal numbers of contacts were made on SSB and CW. There were also a smattering of RTTY and FM QSOs.

Their only regret was that they could not find a place to erect wire antennas for ops on 160/80 metres. The vegetation on the atoll had not re-grown since the testing to a point where such an antenna was feasible, and they did not have a Battle Creek Special along.

Thanks to everyone who provided support for the operation, from the loan of equipment to those providing moral support and communications with families. Thanks are due to Tom, K7ZZ for the release.

QSL Route: V73E WF5T.

Jersey GJ

It is reported that Rainer, DL1ZBO; Tilo, DJ5BX and Ekki, DF4OR expect to be active from GJ, Jersey Island from June 7-12. The group will also be active during the ANARTS RTTY Contest.

Activity will be on 10,15,20,40 and 80m during the contest and the WARC Bands 12,17 and 30m outside the contest. It is expected they will sign GJ/Home Calls and QSL route the same way - via home calls.

CQWW WPX

It will be that time again very soon and some stations are already staking their claim in this popular annual CQ contest.

Jamaica, 6Y

The rare prefix of 6Y1A will be activated by N6BT, KE7X, N6XG and K2KW in the CQ WPX CW Contest May 26-27. Outside the contest, look for operations using homecall/6Y5 from May 20-29. KW amplifiers will be used on 6 through 40m; Force 12 will provide the vertical arrays. Special emphasis will be given on the WARC bands and 6m outside the actual contest weekend.

QSL Route: 6Y1A & K2KW/6Y5 via WA4WTG.

All other QSL cards go to the respective home calls.

Cuba CO

Members of the Cuban Radio Club Las Tunas (CO9KAA) plan to operate the CQ WPX CW Contest with special call T48K late in May. Team members include Raul, CO8ZZ, Doug, CO8DM, and Jose, CO8JY.

QSL Route: T48K via the bureau or direct to: DK1WI.

Galapagos HC8

HC8N will be active in the Galapagos Islands in the CQ WPX CW Contest at the end of May. The team will be QRV in the multi-multi category. The group will consist of N5KO, W6OAT, K6TA, K6KO, N0JK and K5PI.

QSL Route: HC8N AA5BT

Jon, N0JK, says that he will be QRV on 160m before and after the WPX contest around 0300 UTC and 1100 UTC on 1833 and 1823 for Japanese stations. During the contest the station will be active all night on 160m.

Many DXers (myself included) express concern at the electronic look-alike eQSL system which will be the last straw in yet another facet of our hobby and Dxing, et al. Of course it also implies that each and every one of us will have a computer, internet facilities and so on.

QSLING QUESTIONS

In the ARRL DXCC YEAR BOOK there is some discussion about the ideas of electronic QSLing, the eQSL system. You may recall the furore over Alan, VK0MM in recent months and electronic QSLing.

It seems that the ARRL is committed to getting such a scheme up and running in the foreseeable future. The basic feature is of course that any such system must be fundamentally secure and this security might be hard to achieve. Although factors like postal costs are mentioned as one reason for a change, postal costs rise with the general wage/salaries. Many DXers (myself included) express concern at the electronic look-alike eQSL system which will be the last straw in yet another facet of our hobby and Dxing, et al. Of course it also implies that each and every one of us will have a computer, Internet facilities and so on. The idea of other countries being able to check physical QSL cards for ARRL, DXCC is a much better way to go. The IOTA programme is this way, a number of international checkpoints handling literally each and every IOTA card submitted for credit.

In any system there will be a measure of possible dishonesty. However starting last April several countries were permitted to check all DXCC cards and this is one way to expand DXCC checking at a reduced cost to all concerned.

Outside postage charges the actual ARRL charges are not exactly cheap these days So perhaps something could be done in this area.

International Marconi Day

It is reported that more than 30 special-event stations representing historic Marconi station locations worldwide were active during this special event in April.

QSL Information

Maury, IZ1CRR reports that cards for his operation from Ellaidhoo Island, signing 8Q7RR in January have been received from the printer. He will start processing direct requests almost immediately.

Tromelin Island FR/T

Gil, F5NOD reports that some 1000 QSLs were mailed on April 13 and there are still about 2000 cards to process. If you have not received your card so far, please do not send second requests for the time being.

Silent Key

I regret to report the passing of HG Hassan, V85HG, who was also previously V8HG. Hassan often used the phonetics 'Holy Ghost' but I have not heard him for some time.

He was usually very active and very well known on the bands and all his DXing friends will miss him.

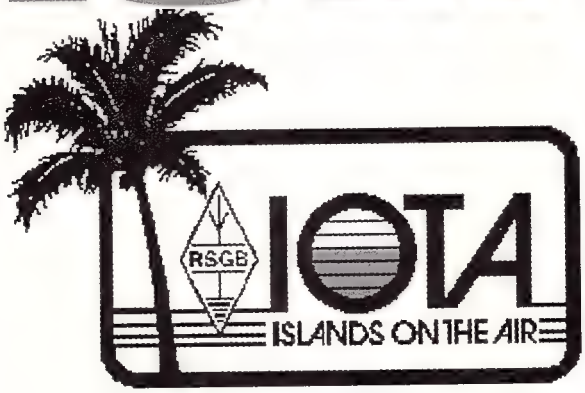
Vale Hassan.

THAT'S IT FOR NOW

So that is the column for another issue and my LPA beam is still not on the ground despite being very hopeful. I did get a standby three-band vertical up and running to cover those 'no beam' days ahead. Our weather has not been the best but I hope that by next issue the beam will have been down and up, and all clean and tidy.

Thanks are due to many that keep me informed, Jon, VK4CY, in particular, plus our two-ringer system that keeps our small DX/IOTA group up to date with news. Thanks are also due to the following DX outlets which work hard to keep us all informed on the DX scene on a regular basis: Les Nouvelles DX; QRZ DX; RSGB Radcom, Funk Amateur, JA CQ Ham Radio, 425 DX News, The Daily DX etc.

ISLANDS ON THE AIR



By Jim Smith, VK9NS/MØBJI, Official Pacific IOTA checkpoint

I liked the new island that appeared on the 1st April signing RG8U who was of course located on that brand new IOTA, Coaxial Island.

A great sense of humour and I forget if he said he was OC-050 or OC-075.

Things are much more normal here now as I now have the updated RSGB HQ IOTA database back here and installed in the CheckPoint.

The recent updates from our area are now set in concrete and they will all appear in the July Radcom IOTA Listing. I also received my own IOTA QSL cards back from the UK and so my claims are also in the update.

In recent weeks it seems that spring has now arrived in Europe, Northern Asia, North America as there has been a great deal of IOTA activity since the last column. As a result most of us in the area have also worked around 4/5 new islands so IOTA is alive and kicking once again. The increase in activity from North America is also welcome as the weather starts to pick up in various areas of the states. By all accounts it has been a long hard winter.

... most of us in the area have also worked around 4/5 new islands so IOTA is alive and kicking once again. The increase in activity from North America is also welcome as the weather starts to pick up in various areas of the states. By all accounts it has been a long hard winter.

Then nearer to home it was good to know that the VK Group had OC-072, Mellish Reef active once again after a longish silence.

Many would be more interested in Mellish Reef as a new country but of course Many Island chasers would also have been in the pileups. The group went QRT after making over 8,000 QSOs and this should now pave the way for another major operation later.

TRAGEDY ON IOTA "NEW ONE" OPERATION (RSGB IOTA RELEASE)

It is with great sadness that the IOTA Committee has to report the death of one of the team members that operated last month from Mursala Island off the north west coast of Sumatra (OC-245/Pr). Following the operation all the members fell seriously ill with Dengue Haemorrhagic Fever and Malaria on their way back to the mainland and INDRA DEWI INDRI ASTUTI, the girl friend of Agus, YC6JKV, died. Agus, himself was unconscious but is now recovering in hospital. The other members are now out of hospital.

Indra Dewi was a much-valued and respected member of the Mursala team. Although a non-amateur, she contributed to its success, helping in many ways as cook and on general support duties.

Our thoughts and condolences go out to her family and to Agus, and to the whole team on their tragic loss.

(Note to those who worked Lily YB6LYS/P, Agus YC6JKV/P, Dayan YC6LAY/P, or Zul YC6PLG/P. PLEASE be patient about the QSL cards - it will take a little time. They have been through a terrible experience and will have more important priorities.)

UP AND COMING IOTA ACTIVITY

EU063

A large multi-national group of Amateur Radio operators will be QRV from EU-063 Prins Karls Forland Island from the 1st -

9th June. The island is located at 78¯ 26' 45" North 11¯ 52' 05" East and counts as Svalbard for DXCC purposes. The group will be QRV as JW0PK on 2 through 160 meters CW, SSB, RTTY, PSK31 and FM.

Operators include Christoph, DL5NAM; Aleksei, ES1CH; Claude, F5PBL; Angelo, I2ADN; Andrea, IK2XDE; Giampaoalo, IK2XDF; Dario, IK4MED; Terje, LA3OHA/JW3OHA; Egil, LA8AV/JW8AV; Marc, ON4AMX; Aleksandra, S57FYL; Atila, S53AC; Jacek, SP5DRH; Witold, SP5LCC, Igor, US0VA; and Hector, XE1BEF.

Suggested frequencies are as follows:

SSB - 1840, 3790, 7060, 14195, 18145, 21295, 24950, 28460, 50145, 144250
CW - 1822, 3505, 7005, 10105, 14020, 18080, 21020, 24895, 28020, 50095, 144025
RTTY - 14080, 21080, 28080
PSK31 - 14071, 21071, 28071
FM - 29200

Meanwhile it has been a busy time...

AF-027	FH/JJ1LIB	Mayotte Island	QSL	JN1HOW
AF-090	5R8GT	Sainte Marie Island	QSL	DK8ZD
AS-013	8Q7JY	Maldive Islands	QSL	JA1JQY
AS-015	9M2XA	Penang Island	QSL	JF4WPQ
AS-025	UA0IA/0	Kuril'Skiye	QSL	US7IAA
AS-028	UA0QBA	Kotelny Island	QSL	EU6TK
AS-032	JF6WTY	Tanega-shima Island	QSL	JF6WTY
AS-042	RS0B	Srednij Island	QSL	RW3GW
AS-057	RU0B	Uedineniya Island	QSL	UA90BA
AS-073	9M2DB	Redang Island	QSL	KD6WW
AS-079	JI3DST/6	Miyako Island	QSL	JI3DST
AS-117	JH4TEW/4	Tashima Island	QSL Direct	JH4TEW/4
AS-154	TA0/IT9YRE/P	Gireshin Island	QSL	IT9YRE
AS-154	TA0/IT9WDY/P	Gireshin Island	QSL	IT9YRE
AS-156	RI0B	Ushkova Island	QSL	RW3GW
AS-157	3W7D	Tam Island	QSL	BA1DU
EU-063	JW3FL	Hopen Island	QSL	LA3FL
EU-092	GB5SI	Summer Island	QSL	MM0BQI
EU-136	9A6AA	Losinj Island	QSL	CBA/Bureau
EU-174	SV8/N2DH	Thassos Island	QSL	N2DH
NA-051	VE7QCR	Queen Charlotte	QSL	CBA/Bureau
OC-030	W1VX/KH4	Wake Island	QSL	JF1OCQ
OC-033	FK8HZ	Lifou Island	QSL	CBA
OC-046	FO0MCA	Tahiti Island	QSL	JA3MCA
OC-060	3D2NV/P	Rotuma Island	QSL	JA1NVF
OC-067	FO0MCA	Bora Bora	QSL	JA3MCA
OC-072	VK9ML	Mellish Reef	QSL	VK4APG
OC-087	V73E	Eniwetok Atoll	QSL	WF5T
OC-088	9M6CT	Borneo Island	QSL	CBA
OC-139	VK5ACY	Kangeroo Island	QSL	CBA
OC-152	FO0CLA/A	Tubai Island	QSL	F6CTL
OC-221	YE8XM/P	Kai Island	QSL	YC9BU
OC-246	YE8XM/P	Seramat Island	QSL	YC9BU
SA-006	PJ2/N2AJK	Bonaire Island	QSL	N2AJK
SA-007	HK0JJH/HK0M	Malpelo Island	QSL	N4AA

NEW IOTA REFERENCE NUMBERS ISSUED

AS-154 TA Black Sea Coast East group (Turkey)
AS-155 BV Taiwan's Coastal Islands (Taiwan)
NB: Stop Press: AS-156 and AS 157 have now been issued.

EU-188/Pr	R1P	Pechorskoye Sea Coast West group (Russ. Fed)
NA-218	CO8	Las Tunas/Holguin/ Santiago de Cuba (Cuba)
OC-245/Pr	YB5-6	Sumatra's Coastal Islands North (Indonesia)

PROVISIONAL IOTA REFERENCE NUMBERS

EU-188/Pr	R1P	Pechorskoye Sea Coast West group (Russ. Fed.)
OC-244/Pr	DU1-4	Luzon's Coastal Islands (Philippines)
OC-245/Pr	YB5-6	Sumatra's Coastal Islands North (Indonesia)

OPERATIONS WHICH HAVE PROVIDED ACCEPTABLE VALIDATION MATERIAL

AS-076	JH4TEW/5	Sa Island (Jan 2001)
AS-076	JH4TEW/5	Yuge Island (Jan 2001)
AS-154	TA0/IZ7ATN	Giresun Island (Feb 2001)
AS-155	BV9L	Liuchiu Yu Island (Mar 2001)
AS-155	BV90	Lan Yu Island (Mar 2001)
EU-187	SV9/SV1CID/	PGavdos Island (Jul 2000)
EU-187	SV9/SV1DPL/	PGavdos Island (Jul 2000)
NA-218	CO8OTA	Moa Grande Island (Sep 2000)
OC-144	YC4FIJ	Belitung Island (Resident)
OC-168	H44MS	Mbanika Island (Feb 2001)
SA-057	CV0F	San Gabriel Island (Jan 2001)

NB: This list includes operations where validation material was volunteered, ie not specifically required for credit to be given. In all cases, cards now submitted will be accepted by Checkpoints if they meet normal standards. This means that the island name must be on the card.

OPERATIONS FROM WHICH VALIDATION MATERIAL IS AWAITED

AS-140	S21BR	Dakhin Shahbazpur Isl. (Dec 2000)
EU-186	TA1ED/0	Gokceada Island (Dec 2000)
EU-188/Pr	UE1RCV/1	Sengeyskiy Island (Mar 2001)
NA-035	HR6SI	Santanilla Islands (Mar 2001)
OC-091	DU1KGJ/P	Polillo Island (Feb 2001)
OC-093	4H2B	Batan Island (Feb 2001)
OC-126	4I1P	Lubang Island

OC-014 ZK1

It is reported that ZK1MA, Tuatai, is now back in Manihiki, North Cook Islands, after his long stay in Rarotonga, South Cooks where he signed as ZK1CY. Tuatai is mainly a CW and he has YAESU FT-747GX to dipoles - Victor, ZK1CG, has loaned the rig.

QSL Information

BA1DU P.O. Box 8091, Beijing 100088, CHINA.

IT9YRE Ferdinando Rubino, P.O. Box 30, 96012 Avola - SR, ITALY.

JA1NVF Katsumi Yoshinuma, 17-6 Wakamiyadai, Yokosuka, 239-0829 JAPAN.

JA1JQY Shigeo Matsui, 2-31-10 Shimoseya, Yokohama, 246-0035 JAPAN.

JF6WTY Yuichiro Hayashi, 16888 Noma, Nakatane-Town, Kumage-Gun, Kagoshima 891-3604, JAPAN.

JI3DST Takeshi Funaki, 2-18-26 Hannan-cho, Abeno-ku, Osaka-city, Osaka 545-0021, JAPAN.

Latest IOTA

AS-157 This currently active brand new IOTA Island activity is from Tam Island a Vietnamese possession in the South China Sea. The island has been issued AS-157 and the call sign being used is 3W7D and the activity is a joint venture between Vietnamese and Chinese operators. The group are Alan, BA1DU; Jin, BA4TA; Liao, BA7QT; Bacai, 3W6AR and Hau, 3W6LI. They are running two stations and they have an amplifier, a vertical and multi-band dipoles on 10-40M SSB and CW.

This joint IOTA Expedition is supported by the Beijing DX Club, the Chinese Radio Sports Association and the Vietnam Amateur Radio Club and is sponsored by the IRE (Island Radio Expedition Foundation Inc.)

So this is IOTA for this issue and it has been an exciting start to the change of the seasons in the North. We can expect plenty of European activity and a few more new ones in coming months.

Happy Island Chasing Jim, VK9NS HIDXA IOTA CP

Russell Bryant's SIGINT

Softly, softly is ware it's at

Here is a quick quiz for you to start with. Name the one thing that has had the greatest impact on the hobby of scanning, since the inception of the synthesised scanning radio receiver? You have sixty seconds of thinking time...

Give up?

The answer may come as a surprise for some. It is the humble computer software program that has done more to advance the scanner than any one single development.

The ability to program as well as remotely control a scanner using a computer has, in the last few years at least, been one of the greatest selling points since scanners and computers were invented.

Despite the wide frequency coverage, despite the massive number of memory channels, totally ignore the all-mode reception as well as the alphanumeric tags, it is the PC's upload/download facility as well as the ability to actually control the functions of a scanner that most enthusiasts, including myself, look for in a radio.

Regrettably only a few scanner users in this country seem interested in this concept.

MAYBE THIS IS ABOUT TO CHANGE

The idea of uniting the computer and the scanner is not new, or confined to recent history.

The first attempt at computerisation occurred in 1984, when Electra Bearcat (predecessor to Uniden) oversaw the development of the Bearcat Compuscan 2100.

This not-so-little white box required the services of a Commodore C64 or the smaller Commodore VIC20 home computers to do all the interface work. It was basically an early version of the now familiar Icom PCR1000, PCR100 or WinRadio external series of virtual receivers. Unfortunately some considered the Compuscan to be so far a head of its time, that the conservative US scanner market mistrusted the seriousness, as well as the concept, of such a revolutionary receiver, to the point where they would not buy it. It failed shortly after release, never to be seen, nor heard of again. In fact, I am given to understand that no Compuscan 2100s made it to Australia, at least in any commercial quality.

TRIALS AND TRIBULATIONS

Fifteen years hence and the principles of the Compuscan have been vindicated many times over. The aforementioned Winradio and Icom IC PCR1000 and PCR100 owe, in some small way, their reality to the trials and tribulations of the Electra Bearcat boffins from the early to mid-eighties.

You may have, by now, realised that the Compuscan as well as the other three radios mentioned need the computer as their driver, in other words, without it, you have an inert grey or black box or interesting looking PC board, as the case may be.

I have in the past been critical of this type of radio, not for the quality of construction or even performance, but for their very need. I should add a caveat at this point - that my opinion of the virtual radio does not extend to those scanners that can be controlled without the need for and independently of the computer.

I know the argument for the virtual units is unlimited memory channels, wide frequency coverage, extras like DSP (digital signal processing boards) and possibly the most misguided point of the whole debate, price.

UNLIMITED MEMORIES ARE PIE IN THE SKY

The sales pitch of unlimited memory channels is just that, a smoke screen.

How many of us can fill every one of the 1,000 channels of say an AR8000 or AR8200? I would hazard a guess and say very few scanner users, including those in major capital cities would have 1000 frequencies programmed into their receiver.

So unlimited memories are pie in the sky, an unreachable and therefore uncalled for characteristic. Wide frequency coverage is no longer the domain of the extremely expensive top-of-the range units. Take for example the diminutive Icom ICR2 handheld. It supports 0.5 MHz up to and including 1300 MHz. Wide enough?

As far as DSP is concerned, unless you tune into HF an awful lot, you will be paying for a feature you will never or rarely use. So why all the fuss?

And now the biggest myth, price.

Have you had a good, hard look at the price of these virtual receivers? I do not think cheap is a suitable word considering you are supplying the hands-on bits.

So before I offend any more readers and several advertisers, I will finish by saying I am still not convinced we need these receivers in preference to the conventional scanner.

Anyway, I've digressed somewhat, and besides someone else is using my soapbox. Back to the subject at hand.

While still using the idea of a computer talking to a scanner, yet having a radio able to operate separately from it, (the computer), we move on.

Software for scanners comes in three separate forms. The most common and, in my opinion, the best is the cloning software, whereby channel information, reception modes, CTCSS tones, alphanumeric labels and just about any parameter can be tailored on the computer, then simply downloaded to the radio, usually in seconds.

If the channel plan has to be altered, in most cases it is a simple cut and paste operation. For scanner enthusiasts who do a lot of travelling or have a need to change 'targets' on the run, this type of program is certainly well worth the money. Assuming of course you have paid for it, as most software products are available free on the Internet.

Imagine deleting the entire contents of a scanner, only to be left with the task of re-entering the new data, channel-by-channel, while using only the radio's keypad?

There are a number of scanners, most of which are portables, which can function independently of a computer, yet their programming is greatly enhanced when interfaced to one.

The venerable AR8000 was the first, and by virtue of that trendsetting feature, one of the best when it comes to CAP - my terminology for computer aided programming. That statement is made notwithstanding the juggling act required to connect the flat flexi-cable to the radio via the battery compartment.

For those not familiar with the AR8000, a history lesson. Towards the end of 1994 and the beginning of 1995, rumours were rife among the scanning fraternity concerning a handheld scanner, which had among its dozens of attributes, the ability to program and, to a lesser extent, control its memories and functions via a PC.

The AR8000 could, when connected to an appropriate interface and driven by suitable software, upload memory, search, and default data to a computer for amendment, before being returned to the scanner.

This feature increased tenfold the speed at which the scanner could have its 1,000 memories programmed. Gone were the days - and I mean days - of button-pushing sessions simply to program all the necessary data into the rig.

HEAVEN ON A FLOPPY DISC!

This initial exposure to CAP has, for me at least, made it a mandatory feature of any radio I buy. The success of the computer interface in the AR8000 was so great, that AOR continued the concept in their AR8200, improving the cable docking method enormously.

So great is the call for this feature in a scanner, that Uniden included it as standard in their UBC245XLT Trunk Tracker II handheld, basically due to consumer demand.

NOT ALL PROGRAMS ARE THE SAME

A trip through the pages of any of the local or overseas radio magazine will reveal a dozen or more software packages able to program and control nearly all the top-shelf wide-band scanners and communications receivers. Only on closer examination will it become evident that not all programs are the same, which brings me to the second category of software.

This group of programs can do all of the above, but in addition it can be used to 'operate' the scanner. With a click of a mouse button the receiver can be made to monitor an individual channel, scan a specific memory bank or alternatively, all programmed memories.

Active frequencies can be logged with time of day, CTCSS tones - if applicable, duration of transmission and even spectrum analysis. Some programs offer all the features of the scanner in a virtual medium. Take for example the PCR1000; the standard software package as supplied by Icom allows the scanning of only one bank. A program available on the Internet takes the process one step further by offering bank linking, expanding the standard one-bank option to multiple banks.

Most of the features associated with this type of program are, to my mind, more suited to the desktop or base unit brigade.

Don't get me wrong, all these qualities are great, especially if your receiver doesn't support them in the first place, or is of limited function without the extra power of the software - but speaking from the handheld point of view, surely it defeats the purpose of having a portable? After all you can't lug a computer around with you, can you?

Yes, I know some laptops and dare I say palm-size computers are small enough, but practically speaking it is surely not desirable.

The third class of software is the utility package.

These programs neither clone nor control a scanner. They instead provide access to the strange and to a degree, hidden medium of digital and data transmissions.

Anyone who has scanned the bands will no doubt have cursed those non-voice transmissions that lock up our scanners.

Rather than swearing at the beeps, burps and clicks, explore this world. A 'scan' of the Internet will reveal all manner of data decoding software including pagers, mobile data terminals, trunking systems, CW and ASCII modes as well as RTTY.

In the majority of cases these programs will operate with existing equipment. Take an audio lead from the speaker socket of the scanner, connect it to the sound card of your computer and away you go. In extreme circumstances it maybe necessary to obtain a 2 or 4 level FSK - (forward shift keying converter). I am unaware of a reliable source for these devices in Australia, so it may be necessary to look overseas.

THE LATEST AND THE BEST

Many years ago I reviewed a product which was capable of decoding pager transmissions.

This product displayed on a computer screen all the beeps found on the frequencies between 148MHz and 150MHz. At the time it was the latest and the best.

In the ensuing years data-decoding software has moved ahead at a rate that staggers the user.

More options, more filters and better programs are available at the press of a few buttons. On a similar vein to pagers is the aircraft reporting systems, Aeronautical Communications Addressing and Reporting System (ACARS).

ACARS is an addressable data link between the aircraft and nominated ground stations. It uses minimum shift keying (MSK) with an audio carrier of 2400Hz.

A packet of information is passed between the aircraft and the ground. This may contain such detail as departure reports, destination time estimates, engine data, position and in-range reports, wind speeds and weather data. Basically a concise and detailed report on an airliner aloft.

Again a quick search on the Internet will disclose a number of suitable and, more importantly, free software programs which are more than capable of decoding the ACARS packet. For those interested the frequency is 131.5500MHz in AM mode.

Don't be too disappointed if you are not close to an airport, an aircraft cruising at 33,000 feet makes a very good transmitting platform and covers a huge area.

Check it out.

Mobile data terminals (MDTs) were hailed by the two-way radio industry as a panacea for all that ails the crowded RF spectrum. Messages could be sent in a similar fashion to ACARS, in small packets, eliminating most voice transmissions with a reduction in airtime being the most obvious benefit. For taxi companies, couriers and services which need to broadcast copious amounts of information, MDT can do more than reduce airtime, it can improve productivity.

To the scanner monitor on the other hand, MDT is seen as the loss of yet another listening target to the digital/data demon. Almost! Available for download as freeware or at worst shareware are several programs that will decode a number of the more common MDT protocols.

Obviously, if the MDT user you are chasing is using a proprietary program, or in other words a protocol development for the exclusive use of an individual, then the decoding software may not work, at least for the moment. These software packages are constantly being updated, so keep an eye on the version numbers.

OPEN UP A NEW WORLD

I have only skimmed the surface of the software pool. Programs capable of cloning, controlling and decoding are available from a number of sources, each able to change the way you conduct you monitoring activities.

If you have a scanner that can be cloned or controlled, investigate the software option.

Alternatively, if the idea of `listening' to some of the exotic data burst that previously seemed off limits appeals, check out the numerous packages, available in the most part for free, that can open up a new world to your ears, or perhaps I should have said eyes.

HANDBOOK SPEAK

Almost without exception the one thread than runs through the reviews that I and other contributors submit, is to read the instruction manual that comes in the box.

These publications vary in size, shape and content. They also vary in their interpretation from Japanese to English. Sometimes the instructions loose something in the translation. I will, from time to time, reproduce some of these passages.

They may cause a smile.

The following are taken from the instruction sheets supplied with a number of well-known brands of antennas. These are direct quotes, I have not edited or altered them in any way.

"Wire safely the coaxial cable to prevent your driving from any trouble".

"The new design emphasises the curve to match the flashing surface car design".

"Pull up the rotation whip and fold over the whip element to omni direction".

"Wrapping up her appearance with rubber, you can fell more comfortable".

That last one paints a number of images in my mind, however I am at a loss to understand what it is alluding to, nevertheless remember wrapping up in rubber is comfortable, along with a good dash of baby oil no doubt. If you strike any further examples of fractured English please forward to me for inclusion in this column. I will be thanking for you to offer you help and add to endless joys!

That's it for another month; the address is PO Box 344 Springwood NSW 2777, or email rusty@hermes.net.au

THE 27MHz DXer

By Jack Haden VK2GJH
27dx@usa.net

An hour and a half of transmitting time was lost due to a police car parked outside with three officers eating their breakfast and chatting. Also a low flying helicopter during the morning with a fellow peering out, looking through high-powered binoculars, made Rupert go silent

The path from Australia to the Caribbean and Central America has been wide open with some very big signals coming through. DX from Europe has had its ups and downs too, there one day nothing the next and so on. There's been very little reported from the Pacific this month with most DXers chasing the semi rare ones from Latin America.

Evan, the 43-EW-01 writes to say he worked a total of 35 USA states during April with just 10 watts to a MK II Station Master at 25 feet. As a bonus, Evan worked five new DXCC entities in the Caribbean using this simple station. Evan says *"The propagation has been unreal on 27MHz in recent weeks, my worked all USA states total is now 47 worked with 42 confirmed. It's taken me eight years to get this far and I hope to bag the last three before this solar cycle is over. Some of the signals from the Caribbean, especially between 2000-0200z, have been so strong they have wiped out many interstate signals. All I have to do now is hope for some positive QSL returns."*

Iran 154-BRC/0

Rupert, who operated as 154-BRC/0 during February, reports some 854 contacts made to 48 DXCC entities. The going wasn't always easy, getting the equipment through Iranian customs was a touch and go affair. A small bribe smoothed things over it appears. Rupert used a small Sirtel Santiago 1200 mobile antenna mounted on a windowsill so the antenna couldn't be seen by passers by.

His first two or three days of operation proved to be very dismal owing to the poor performance of the small antenna and that he was only transmitting four watts of output power from a Superstar 3900. After some modifications the situation improved enough that he could actually work some DX. Rupert had the usual problems with over excited European stations; especially the French who made the contact rate slow.

An hour and a half of transmitting time was lost due to a police car parked outside with three officers eating their breakfast and chatting. Also a low flying helicopter during the morning with a fellow peering out, looking through high-powered binoculars made Rupert go silent. Rupert enjoyed his Iran operation and thanks everyone for his or her patience.

Market Reef (213)

Magnus 21-SD-011 and Thomas 21-SD-101 will spend two to three days only on Market Reef as 213-SD/0 in either June or July. The operation will be strictly business with split frequency as required. DXers are advised to give only full callsigns plus signal report to 213-SD/0, they are not interested in names, equipment, weather reports or listen for a friend etc. Progressive numbers will not be issued, they also state that you do not request on air QSL information, it will not be given. A web site will be established after the operation is completed at http://www.21sd.cjb.net

Sri Lanka (177)

Plans are well underway with the proposed 177-SD/0 operation commencing on the 30th July and winding up on the 18th August. Split frequency will be used when the going gets heavy, full callsigns are expected. QSL to PO Box 100153, Pirna 01781, Germany.

Zimbabwe (85)

Reports coming from Zimbabwe indicate that the government is really going out on a limb to enforce the radio communications act. This has resulted in a number of out-of-band 27MHz stations disappearing from the airwaves until things settle down. To discourage hobby radio the government recently raised all licence fees with one fellow saying "Evan legal radio users are being forced off the air by extremely high licence fees." The Zimbabwe authorities don't muck about either, they usual place communications violators into prison whilst their charges/cases get sorted.

WORLD DX FORUM

Disclaimer:

All times published are in the UTC/GMT format, QSL routes and IOTA designators are given where known. Information is derived from a number of sources in good faith and can possibly contain some inaccuracies and transcription errors beyond my control.

THE PACIFIC:

Palau (Belau) has been rescheduled for a 02nd June start up date and will conclude on 08th June as 134-FAT/0. QSL to PO box 63, Caudan-Cedex 56854, France. The previous April/May operation published in this column last month was postponed.

EUROPE

The Aland Islands are always a nice catch, as there's never been consistent activity from this very remote island group in Scandinavia. Currently reported as active is 212-DT/DX, QSL to PO Box 191, Cabezo De Torrres, Mucia 30110, Spain.

Albania was doing the rounds of the DX traps during April with 251/1-AT-023 very active. Allen 43-AR-09 worked it around the rather late hour of 1354z the other Sunday. Someone mentioned that this was an IOTA oper-

ation from EU-016?

Andorra is currently active as 51-CAM/DX and closing on the 31st October. QSL to Christophe at PO Box 30, Muret 31601, France.

Crete Island will be about during June with two separate operations taking place. The first is 90-EL/0 from 03-09th June, QSL to PO Box 30-01-01, Lippstadt 59543, Germany. The other activity will be from 90-TRC/DX in the period 26th May through to 03rd June. QSL to PO Box 49, Kazanlak 6100, Bulgaria.

Croatia should be about in the period 23rd June to 08th July as 328-IR/EU-110 in an IOTA operation. The name of the island was not provided. QSL to PO Box 8, Aigen 5351, Austria.

Gibraltar came through quite well at 0732z with 55-SD-000 a good 5x7 with Evan 43-EW-01, however the station soon faded out and was gone by 0736z.

Luxembourg is scheduled for activity from around now, and concludes on 30th June as 54-MU/DX. QSL cards go to PO Box 7, Pierrepont 54620, France.

Market Reef attracted considerable attention during mid April with 213-AT/DX heard in northern QLD around 1000z on 21st April. However, the European pile-ups proved difficult to break with 213-AT/DX giving exceptionally strong reports to the EU callers. There will be another opportunity with 213-SD/0 scheduled for June/July.

Moldova should have been about during May as 312-RC/0. QSL to PO Box 3, Foecy 18500, France.

The Ukraine was noted at 0810z with Leo 315-XX-001 calling for the Pacific. Leo was a good 5x6 at the time here in Sydney. Derrick 43-SD-108 had Leo much earlier at 0545z but lost the QSL route due to fade, however I managed to get it down at 0812z. QSL to PO Box 1844, Dnepro 49027, Ukraine Republic.

AFRICA & INDIAN OCEAN

Benin has been doing very brisk business on the band with 183-AT/DX proving very popular. Around 0810z on April 14th I heard him very weak in the noise, a 3x1 at the very best. A number of stations were heard moaning about the fact he wasn't issuing progressive numbers, just saying "in the log" and nothing further. QSL to Mr. Sebastian Lebrun, Rue des Ecoles, Antoigne 49260, France.

Hang, 224-AT-104 outside his "shack" in Kiribati

Botswana is still very active with 105-SD/DX due to close on the 19th June. Quite a number of people in Australia have already worked this one. QSL to PO Box 1, Verderio Inf (LC) 23879, Italy.

The Canary Islands came through via the long path at 2245z with 34-AT/NPT (National Park of Teide) a good 5x7. Just up a channel or two was Juan-Carlos 34-AFI-102 also quite strong peaking 5x9 but with some fade evident.

Kenya will be about the usual DX traps from 24th May through to 02nd June as 187-SD/0. QSL to Gert at PO Box 82, Woerden 3440-AB, The Netherlands.

Nigeria proved to be a good catch for Evan 43-EW-01 when he logged 89-ST-101 at 0756z with a readable 5x1 report exchanged. Evan commented that the Nigerian station had quite a lot of ripple and flutter on the signal at the time.

Reunion Island conducted very brisk business with Asia and the Pacific at 1136z with 173-TRC/DX worked by Allen 43-AR-09 at 1244z. Allen said it was very hard to get a break with all the commotion from Europe, which slowed things down considerably. QSL to 178-TR-01 in Bulgaria.

Uganda will be about sometime during July as 174-FAT/0, exact dates have yet to be published. QSL to PO Box 63, Caudan-Cedex 56854, France.

Zimbabwe has fast disappeared from 27MHz freeband due to the authorities cracking down on out-of-band frivolities. However, Derrick 43-SD-108 managed to work Dean 85-SD-102 at 0915z with a 4x3 report.

ASIA/MIDDLE EAST

Cyprus burst through the noise at 0600z with 110-ED/DX a good 5x7 in Sydney. QSL to Alex at PO Box 19, Corbie 80800, France. Also heard was 110-IR/AS-004 (IOTA) the very next day at 0711z a fair 5x3 with Peter 43-FP-103. QSL to Florent at PO Box 07, Baldenheim 67600, France.

Georgia came through quite well at 1155z with Derrick 43-SD-108 working Helen 306-GRJ-02 a good 5x7 on the meter. QSL route not supplied.

Kazakhstan proved to be a nice catch at 0732z with Derrick 43-SD-108 bagging Alex 308-SD-108. Although the signal report was poor, just a 3x2, both managed to complete the contact.

Kuwait is reported to be quite active as 102-VE/DX and will close once 1000 contacts are reached. QSL to PO Box 168, Pollensa 07460, Balearic Islands, Spain.

Kyrgyzstan emerged through the rabble from Indonesia at 0504z with 309-TA/DX a good 5x8 in Sydney. However, with most people still at

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work his calls were left begging until a New Zealand station eventually replied.

Mongolia burst through the noise at 0800z with Chak 95-JT-001 a good 5x9 plus, however it was very short lived as he faded out entirely by 0812z.

Qatar was heard around 0648z a good 5x8 with rapid fade. Calling for the Pacific, 115-KPI/0 didn't have much response and ended up working some Europeans. QSL to Tomas at PO Box 121, Zaragoza 50080, Spain.

Saudi Arabia is about the traps with Hassan 48-HZ-01 reported quite active around the 1100z with a good signal into the northern states of Australia. Hassan is in the city of Medina and was recently worked by a number of Queensland DXers. Additional activity was expected from 48/102-AT-112 during April but nothing was reported in recent weeks. QSL to 1-AT-024.

South Korea will be about as 100/13-IR-102 until 06th June. QSL to PO Box 1410, Roth 91142, Germany.

West Malaysia continues to be very active with 113-IR-102 heard on most weekends. There seems to be some confusion as to the QSL route, the correct route has now been confirmed. Cards go to PO Box 1410, Roth 91142, Germany.

LATIN AMERICA/CARIBBEAN

Aruba came through 5x9 plus at 2215z with 232-AT-107 leading the way. Quite a number of East Coast stations scrambled for contacts. The signal was still very strong an hour later. You may also like to look for 232-VE/0, which is supposed to be active until 1000 contacts made. QSL to PO Box 93, Vollenhove 8325-ZH, The Netherlands.

The Cayman Islands attracted considerable attention with 125-AT-105 a good 5x9 at 2300z. Despite the strong signal, Gil 43-GG-01 found making a contact hard as the Cayman station had a path to Europe at the time.

Guyana is a semi rare DX catch and I was most surprised to hear Esmond 131-IR/DX calling the other Sunday with little response from the Pacific. At 0012z Esmond was a good 5x8 in Sydney.

Saint Lucia proved to me a nice catch for Andrew 43-AW-010 at 2358z with 5x9 plus signals from 143-SD-104 exchanged the other Saturday. Quite a number of Australian stations were in pursuit with signals reaching 5x9 plus at times.

Saint Maarten was about at 2359z on ANZAC day with Ronny 166-AT-101 having his fair share of problems with unruly operators. Deliberate jamming by a South American station prevented a number of Australian stations from making a contact.

Suriname should be still about as you read this with 73-LD/0 active until 500 contacts are made. QSL to PO Box 472, Paramaribo, Suriname, South America. No callsigns or club stamps on the envelope.

Trinidad & Tobago surged through the noise at 0046z with 158-SD-102 calling for the Pacific and Asia. Also noted was Robert 158-CI-103 at 0059z a good 5x9 plus in Sydney.

FUTURE ACTIVITY...

Aland Island 212-SD/DX soon, **Angola** 39-RS/0 soon, **Benin** 183/14-RSI-015 09-31 Aug, **Bermuda** 123/35-AT-130 Mar to Nov inclusive, **Estonia** 304-SD/0 01-31 Aug, **Federated States of Micronesia** 230-FAT/0 01-31 Aug, **Hungary** 14 July-1000 contacts, **Iceland** 27-SD/DX 01-31 July, Rodi **Dodecanese** 59-AT/EU-001 Kos Island 12-26 Sep, **Rotuma** 325-TD/DX soon, 325-WD/DX soon, **Senegal** 64-SD/0 01-30 Aug, **Scotland** (Shetland Islands IOTA) 108-SD/SH-EU-012 28 Jul to 07 Aug, **Singapore** 98-SD/0 05-20 Dec, **Sri Lanka** 177-SD/0 30 Jul to 18 Aug, **St Kitts & Nevis** 283-DT/0 soon, **South Cook Is** 250-SD/0 13-27 Nov, **Tunisia** 147-AT/AF-083 Djerba Island 06-23 Aug, **Uganda** 174-FAT/0 July, **Ukraine** 315-WD/DX soon, **Western Sahara** 300-IR/0 soon.

EPILOGUE

Thanks go to the following contributors for sharing their news with us: Colin in QLD, Gil 43-GG-01, Derrick 43-SD-108, Allen 43-AR-09, Peter 43-FP-103, Andrew 43-AW-010, Evan 43-EW-01. Reports can be sent via email to 27dx@usa.net or by post to PO Box 299, Ryde NSW 1680.

Catch you all next month...73 de Jack.

John Batty, VK4MBK, reports on his

SHORTWAVE LISTENING WITH A DIFFERENCE

Forget the broadcast stations – here's where to find the really interesting ones ...

John Batty *caradoc@caradoc.com* **or** *PO Box 703, Nanango, Queensland 4615* **spent years in the Air Force. In retirement, rather than listen to 'run of the mill' shortwave stations, he concentrates on some very unscheduled operations. His loggings are somewhat more interesting and thought-provoking than most commercial stations ...**

Low-band VHF ducting has been providing Ian Julian in NZ with some excellent signals this month, as will be seen from the loggings below. On receipt of his reports I've been scanning around there myself, with much less spectacular, but still interesting, results, including some patchy California Highway Patrol sigs ("One Mary 29, attention to a red Pontiac Firebird at the downtown offramp" ... etc).

Some of the Australian low-VHF loggings look like the Australian Army exercising with (or at least against) armoured vehicles - the "Red Force" appear to be using Russian T-62, BTR and BRDM armour. In discussions with Ian it appears that the skip/ducting may have been coming from southern Australia, which means these exercise sigs could have been reaching Ian from Puckapunyal, Victoria, home of Australian armour. Can anyone confirm?

Ian is also hearing KY57 encryption on the following 25Khz offset freqs; 34.975, 35.375, 35.575 and 41.275. We're wondering if they may be RAAF Amberley 2/3 AFDS (Air Field Defence Squadron) freqs, since known 2/3 AFDS frequencies are mainly in the 34 and 41MHz range with .25KHz offsets, and Ian is hearing sigs on these freqs when propagation from Queensland is good. Would any Adgie brothers of the Grunge Bucket care to comment? And while we're at it, does the name Camp Williamson mean anything to anyone with regard to communications?

If anyone thinks that the EP-3 Aries surveillance aircraft which was brought down by a Chinese F-8 fighter off the Chinese coast was a one-off, think again; according to NBC news, on a daily basis there are 8 EP-3's and 12 RC-135's in the air, conducting electronic surveillance along the borders/coasts of North Korea, Yugoslavia, China, Iran, and Russia.

An email from Rob Smith of Comox, Vancouver Island, British Columbia, Canada, supplies some new callsigns for the JTF-FA net: "Just read through your website and the JTF-FA notes; a couple of years ago I could receive comms on 261.850MHz from Victoria, B.C. when I was living there. I now live further north and don't have the same antenna setup, but I would like to contribute some callsigns and notes that I wrote down when monitoring them.

"261.850MHz, INDIA 31 in contact with ARMY BASE CAMP re going to a different crash site of an A-1E, found 2 x .38 cal. rounds, parachute buckles, etc. He also called EAGLE and sent a sitrep in scrambled mode. Also on the same day heard Oriental communications, then in English called EAGLE 3 and also heard R E BASE, R E 2 and R E 1. On another day I heard the following: "TIGER this is PANDA BEAR, is that helo on its way?". "Will be down for 30 mikes". "EAGLE 3 this is EAGLE 2, passed 7770kHz H.F. alternate." Might be worth checking out the HF freq. I am hoping to get setup again in order to see if I can receive any more SATCOM communications soon." The 7770kHz HF frequency joins 8225kHz and 8410kHz as JTF-FA HF frequencies. However, it is not known how badly affected this years mission has been by the tragic MI-17 helicopter crash in Vietnam in late March, which cost the lives of some 16 personnel. It has been speculated that the often-heard SATCOM callsign JAGUAR was, in fact, the helicopter involved.

THE LOGS

8974kHz:

0432z IROQUOIS 12, wkg AIRFORCE AUCKLAND, flight guard terminated 0432z out. (NJ)

0439z IROQUOIS 14, clg AIRFORCE AUCKLAND, arrived WAIOURU, close SAR watch over. (NJ)

0450z HERC 7005, clg AIRFORCE AUCKLAND, airborne NZWF [Wanaka] ETA NZWP [Whenuapai] 0630, request you pass that onto 40 Squadron. (NJ)

0609z TRIAD clg ?08 for radio check, then advising that will no longer be monitoring this frequency. Radio procedures were very relaxed, more like police comms than military. (SD)

0632z WOMBAT 431 (Caribou), clg AIRFORCE SYDNEY, do you have any message for us over, and then closed watch. (NJ)

0747z AIRFORCE SYDNEY, clg HUDSON 543 with no reply (NJ)

0800z AIRFORCE TOWNSVILLE clg ARMY MOUNT ISA with no reply. (NJ)

0830z KIWI 850, AIRFORCE TOWNSVILLE request relay to AIRFORCE SYDNEY, KIWI 850 requests they come up on track freq as per KIWI 850 selcall plan. (NJ)

8992kHz:

0625z, DACTL 33 in pp with OFFUTT Metro, arrival wx for EGLIN AFB ETA 0715z. (JB) Mike Comer, west of Cape Canaveral, sent the following email regarding this aircraft: "The DACTL call is a frequent nighttime visitor to the Cape Canaveral Air Force Station. He is indeed based at Eglin. No idea on the type, but have seen one report as a 727. Have also seen the spelling as DACTYL. One night he RTBd Eglin due to weather here, and stated he had 40k fuel and 10 passengers. He only shows up here at night to shoot touch and goes on the Canaveral Skid Strip. Strange bird, would like to learn who or what their mission is." So would I now Mike has told me that, but he

didn't give a PIREP and I haven't heard him since. He did spell his callsign as DACTL though.

9033kHz:

0745z PROUD EAGLE (USS Tarawa LHA-1) and REVOLUTIONARY GATOR (USS Bonhomme Richard LHD-6) working with FLEET HOSPITAL (probably USNS Mercy T-AH 19), BIG DIPPER, DOCTOR PEPPER, WHITE PONY, YELLOW BUS, BIG LEAGUE, MOTHER LODE and other callsigns. Signals continued over several days, usually fading in an hour or so before and fading out just after local sunset. Lists of casualty figures, prisoner of war lists, situation reports, all relating to amphibious landing exercises taking place across the beaches of Camp Pendleton, near Santa Clara, southern California. San Diego Hospital and Mercy Hospital also put in an appearance for radio checks. The KERNAL BLITZ landing exercises take place every other year. This year (April 2nd) 6000 US Marines hit the beach, with helicopter air cover. (JB)

11175kHz:

0713z AMBER 51 with p/p to HICKAM OPS via HICKAM. (SD)

0734z TROY 11 clg BARK SHAG ECHO with no joy. (SD)

0745z TROY 43 clg MAINSAIL and answered by HICKAM, with p/p to ELMENDORF BASE OPS on 317 552 XXXX and advised will pick up DVs and advise ETA Elmendorf once DV picked up. (SD) (Don't have any ID listed which makes sense for either AMBER or TROY callsigns. "DV" is "Distinguished Visitor").

0945z PACOM 01 req p/p via Hickam, with Sam CP on 858 XXXX, combination of bad signal and QRM wiped out actual p/p. Then requested p/p with Hickam Metro, req Andrews wx for 1115z ETA. (JB) PACOM 01 is the USAF C-135B operated by 89MAW, Andrews AFB, for the use of the Commander, Pacific Air Forces (alternate callsign PACAF 01). Tail number is 62-4127

1043z SNOOP 52 requests p/p with Fairchild AFB CP, STRIKE HAWK, via McClellan. Request a 1315 BT (block time - "in the blocks at 1315") with <sounds like> AERO or ARROW 51; was previously scheduled for 1345. STRIKE HAWK says he'd pass it on, p/p disconnected and gone. (JB) SNOOP 52 is a USAF RC-135U/V/W of either the 45th Reconnaissance Squadron or the 7th Air Command and Control Squadron, 55 Wing, Offutt AFB.

LOW-BAND VHF:

33.325MHz:

Russian Military 0305z with sync tones and encryption. (IJ)

33.350MHz:

Aust Army 2230z with brief voice bursts. "We'll obviously do that over ... Understood." (IJ)

33.410MHz:

Japanese Military 0155z with brief voice bursts in JJ and some EE. "To ... Breako ... From ... I say again ... Breako over ... QUEBEC CHARLIE ... Roger out." (IJ)

33.655MHz:

Russian Military 0308z LSB with sync and encryption. (IJ)

34.800MHz:

LIONHEART or LAMBARD? (sounded like): US Army Range Control 2206z with continuous voice bursts. "Over ... Unreadable over ... This ... verify your RSO over ... ECHO TWENTY THREE, this is LIONHEART or LAMBARD? (sounded like) ... ECHO TWENTY THREE verify your RSO over ... Roger ... that's a solid copy ... Radio checks on the half hour over ... Mandatory ceasefire will be at twenty one hundred hours over ... Repeat after OIC over ... You're breaking up ... You're cleared to go HOT ... Over ... First SITREP is seven thirty hours ... RANGE AREA ALPHA to be determined with EOD." (IJ)

35.350MHz:

19 and 19 FOXTROT: Australian Army 2345z with continuous voice bursts, mixing in with Asian comms. "Move forward, more to follow over ... These three soldiers ... positions ... those soldiers are now dead until after the games are finished over...ONE NINER acknowledge reference future plans over ... ONE NINER FOXTROT...at this stage this callsign will hold firm until callsign ONE THREE finishes his charge ... approx 500 metres more to follow ... ONE NINER send over ... Hopefully once his callsign has withdrawn this callsign will remain 20 minutes back to ... staff over ... ONE NINER roger ... ONE NINER FOXTROT roger wilco out ... Roger stay where you are, we're approx 500 metres to your south, RV within two zero minutes." (IJ)

37.850MHz:

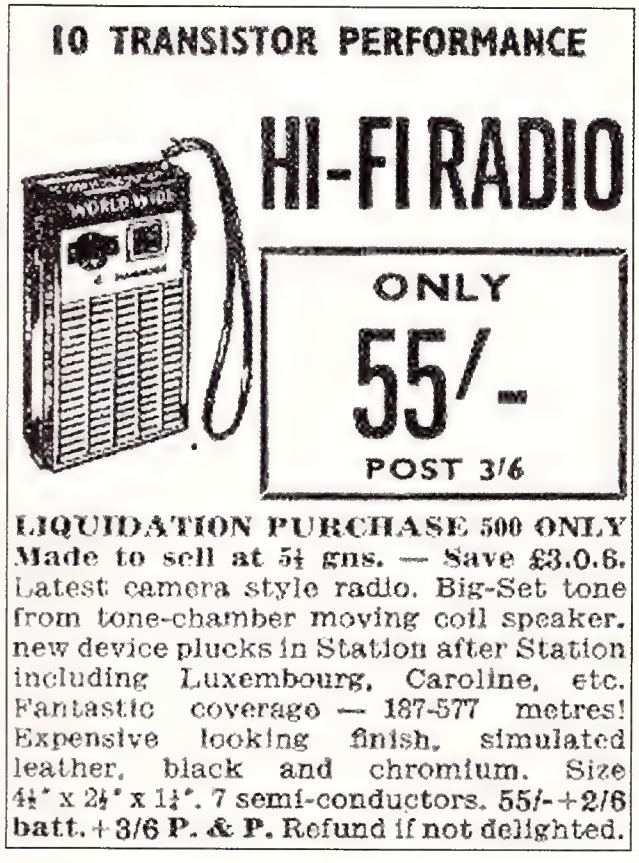
An excellent detailed catch from Ian Julian, of Australian Army units engaged against armoured fighting vehicles:

11, 12, 14, 19, 31, 32, 33, 39, 51 and 81 ALPHA, 81 BRAVO and 81 CHARLIE: Australian Army 2215z with continuous voice bursts. "ONE TWO wait out ... ONE NINE ... Support of the assault is underway over ... Out to you; ONE ONE this is ONE NINE ... This is ONE ONE ... Wait out ... Contact with the armed ... wait out ...

EIGHTY ONE ALPHA, this is EIGHTY ONE BRAVO ... EIGHTY ONE BRAVO ready, out ... EIGHTY ONE this is EIGHTY ONE ALPHA ... THREE ONE this is THREE NINE ... Go, over ... Roger ...

EIGHTY ONE CHARLIE this is EIGHTY ONE ALPHA, currently a thousand short of DIAMOND over ... THREE NINE I believe I may have the BTR COMPANY averting north ... I move the two callsign further to the west, now blocking positions along the DIAMOND SPADE route in case of the T SIXTY TWO / BTR COMPANIES moving north along that track over ...

EIGHT ONE ALPHA this is FIVE ONE ALPHA, roger your DELTA SIERRA? ... will do that too out ... This is THREE NINE, you move up the junction DIAMOND SPADE route; EIGHT ONE BRAVO you hold firm supporting the CHARLIES; move back to previous location, EIGHT ONE acknowledge over ... You move in the vicinity of the junction between DIAMOND and SPADE, see if you can get observations ... to the south ... CHARLIE and BRAVO ... East of SIX ONE, might stay in the open country to the east of south west ... pull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back through SIX ONE over ... Acknowledge over ... Say again your last over ...

THREE ONE, THREE TWO this is THREE NINE, BTR COMPANY I believe they're moving to the north along our axis, once engaged hold your positions ... THREE THREE, THREE FOUR this is THREE NINE you're prepared to move west along DIAMOND ... T SIXTY TWO and BTR COMPANIES are said to push further to north; THREE THREE acknowledge over ...

This callsign just engaged BTR, 300 metres south of DIAMOND ... next move need to orientate it to go south ... in vicinity of ONE FOURs position. ONE FOUR acknowledge over ... ONE FOUR acknowledged over ... THREE NINE this is THREE TWO those BTRs are trying to get around callsign ONEs location at this stage over ...

EIGHT ONE this is EIGHT ONE BRAVO, presume you want the 300 south east of SIX ONE over ... this is EIGHT ONE ALPHA contact with BRDMs ... this callsign ... location ... over ... THREE NINE, it appears the BTRs are now moving ... correction ... bypassed our position, they're starting to move west along the SPADE route.

EIGHT ONE can ... our position to observe and ... back, and please remove THREE THREE and THREE FOUR further to the north and push them to a line through GOOD LUCK orientated to the south, to support EIGHT ONEs move back, and block the advance of either the BTRs currently on DIAMOND or the BRDMs trying to push to the west ... correction ... each side of callsign ONEs location over ... THREE THREE, THREE FOUR this is THREE NINE, I want you to move now, north to HARD RACK and take up a blocking position, one WHITE CALF orientated to the south to support a move by EIGHT ONE back through that location; move now, out to you ...

THREE ONE, THREE TWO ... location report, any follow up courses and engage where applicable out ... ONE DELTA this is ONE TWO, contact two minutes ago grid zero seven one zero four eight ... Two T Sixty Twos moving north this callsign engaged and destroyed ... further EVA? noise to the south, this callsign continues to observe, out.

Contacted now, BTRs are moving north towards the DIAMOND route, this callsign engaged and destroyed three ... moved west into the forest, I believe at this stage the forces are now pushing towards callsign ONE location out ...

In position of grid zero nine seven ... third cluster of T SIX TWOs are moving north along the SPADE route .... I believe the BTRs are pushing west along DIAMOND route ... past WHITE CALF ... report to this callsign ... ONE FOUR and ONE TWO, you'll then move to a line through YOU BEAUTY to support and take up positions 600 plot of YOU BEAUTY, on the spur line, and support ONE ONE and ONE THREE ... Roger out ...

THREE NINE this is THREE THREE, this callsign and THREE FOUR are now firm, WHITE CALF orientated to the south out ... my location ... contact with T SIXTY TWOs ... moving north along the track; this callsign engaged and destroyed ... continued to observe EVA? noise further to the south out ...

This is THREE ONE, this callsign is still firm with THREE TWO, no other contact at this stage over ... Roger out ... This is THREE THREE, myself and THREE FOUR are pushing north along ... route ... marry up with THREE ONE and THREE TWO and move up to GREY CAT as well, to support a move. Avoid EIGHT ONE and callsign ONE further to the east over ...

EIGHTY ONE this is EIGHT ONE BRAVO, jockeying, wait out ... EIGHT ONE this is EIGHT ONE BRAVO, we've moved in FOUR NINE out ... This callsign engaged one BRDM ... and currently continuing on our way to ONE FOUR, wait out ...

THREE NINE this is THREE ONE ... This is ONE ONE, this callsign and ONE THREE now pushing back through ONE FOUR and ONE TWO ... at this stage ... a line through ONE SIX ...

EIGHT ONE this is EIGHT ONE ALPHA, contact with BTR approx 300 metres west of ... over ... EIGHT ONE BRAVO, I'm currently firm at a line through ONE FOUR out ... Contact BTR ... MSR to our right, left now over ... THREE NINE this is EIGHT ONE, this callsign will be breaking through your location approx three minutes ... still got two BTRs closeup following up this callsign over ... THREE NINE roger out ...

This is EIGHTY ONE CHARLIE, confirm 300 east of INDIGO IGUANA located west of the tree line, to support ALPHA, BRAVO ... BRAVO your next move approx 800 metres east of INDIGO IGUANA on the high ground, vacate towards the west ... 1500 metres main grid line which runs north south from INDIGO IGUANA out ...

THREE ONE, THREE NINE, contact, BTRs moving east ... wait out ... THREE NINE, THREE ONE contact now ... grid one two six one six seven ... 1 BTR this callsign engaged and destroyed ... further to that ... contact is now vicinity of grid one zero one six, unknown vehicle at this stage, continue to observe in that area out ...

We have contacted three BTRs moving east along the road and have destroyed them; at this stage we have vehicle noise and dust approx five six kilometres to the west, however at this stage there appears to be no FIREFORCEs ... believe they may be regrouping before joining a push further to the east over ... ONE NINE, at this stage I believe from HAWKEYE ... we need to hold our positions in the vicinity of GREY CAT. This stage callsign TWO is moving across from the east .... EIGHT ONE ALPHA ... on the line of INDIGO IGUANA" (IJ)

38.125MHz:

GHOSTRIDER: US Military 0010z with brief voice bursts, mixing in with Asian comms. "I've got the baggage ... When you move out ... How copy ... GHOSTRIDER copies ... This is GHOSTRIDER ... Boy, that's you buddy, in the coverall." (IJ) The only listing I have for GHOSTRIDER is the US Army Fort Rucker (Alabama) Army Air Field Command Post. Fort Rucker houses, amongst other units, the Army Aviation School.

38.450MHz:

ZERO ALPHA: Aust Army 0115z with brief voice bursts. "TWENTY NINE ALPHA, this is ZERO ALPHA ... Acknowledge over." (IJ)

38.975MHz:

ROKA; South Korean Army 0008z with continuous voice bursts in KK and raspy audio. (IJ)

39.650MHz:

US Military 0102z with brief voice bursts. "How Copy over ... Be advised the main co-ordinates over." (IJ)

42.250MHz:

Asian Military 2350z with brief voice bursts and raspy audio. (IJ)

42.650MHz:

Asian Military 0144z with brief voice bursts and raspy audio. (IJ)

In late March/early April, several Pac West Bravo and UFO F4 satellite frequencies began firing up with strong dead carriers. Nothing intelligible has been heard as yet, but these freqs include 265.45 (UFO), 261.55, 261.825 and 261.875MHz (PacWest), all nFM. Tony in Oregon and Noel Jones in NZ caught the same carriers. While no-one has as yet reported clear voice from the UFO satellite/s, the PacWest bird does occasionally come alive with brief "clear voice" USAF or JTFFA comms.

Out of space before I'm out of logs again this month; thanks again to all our "loggists", all logs are welcome. Special greetings this month to Manhole, Beamer and LT.

IJ	Ian Julian ZL1TBM Pukekohe NZ
JB	John Batty, Nanango, Queensland http://www.caradoc.com
NJ	Noel Jones, Auckland, New Zealand http://homepages.ihug.co. nz/~ngjones
SD	Simon Denneen, Sydney NSW/Gold Coast Qld

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- Dragon SS485H with Dirland 6/8 Amp power supply and Sirtel S2012 (12 Radial Base station)..... $685
- DSS9000 with Linea 800 mobile antenna..... $395
- Magnum 357DX mobile radio 150 watt with Sirtel FMP119 ..... $795
- Dragon S485+ mobile radio with Santiago 600..... $415
- Dragon SS485H mobile radio with Santiago 600. $485
- Santiago 600 5/8 mobile antenna..... $80
- Extension speakers SS220F or WS300..... $15
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27MHz or UHF CB? AM, FM or SSB?

Which is best?

From **Jason Reilly**

THE 27MHZ CB SERVICE

Equipment for 27MHz can generally be bought cheaper than that for UHF. At the cheap end of the scale, you can buy an AM only 27MHz CB, which would be fine for chatting between parties located not too far apart, such as within your surrounding suburbs, or between cars or trucks travelling together on the road. In fact, channel 8 AM is recognised as the 'road' channel, but tends not to be used these days. AM (Amplitude Modulation) here refers to the method your voice is 'impressed' onto the radio waves. The big drawback of AM is that it is very susceptible to noise, and is not a very efficient way of transmitting your voice; only one eighth of the power of your transmitted radio signal is actually used to carry your voice to the other end. The bonus for AM is that it is simple and cheap, and sets can be made quite small. Expect to pay about $80 to $130 new depending on the features & quality you want, down to between about $10 and $50 for a second hand unit.

If you want to overcome these drawbacks, you would buy a 27MHz CB with SSB (Single Side Band) as well as AM. Single side band is a different, more efficient way of transmitting your voice. It is less susceptible to noise than AM, and regulations governing the allowable output power of CB radios allow a higher output power using SSB, thus allowing a longer reach for your signal. The drawbacks of SSB is that the equipment is not as compact, more expensive, and the voice quality while very understandable, has a slightly unnatural quality to it.

Antennae for 27MHz are, generally speaking, considerably larger then their UHF counterparts.

Under normal conditions, you can expect about a 10 to 15 km range for your AM only CB between base stations, and up to 80 km for SSB mode between base stations. Roughly divide by three these distances for communication between mobiles There is a condition known as 'skip' which will allow your 27MHz signal to travel much farther distances, perhaps many thousands of kilometres. Every eleven years or so, the sun goes through a cycle of producing sunspots, which charge the ionosphere, causing it to become somewhat reflective to 27MHz CB signals, but not for UHF signals. The 27MHz signals travel from your antenna up to the reflective ionosphere and 'bounce' off it back to earth some hundreds or thousands of kilometres away. During such conditions the channels become very crowded, not only from people looking to contact people from long distances, but from other people who are just talking between themselves in their own area - also thousands of kilometres away!

You will be paying between $180 and $300 for a new SSB 27MHz CB again dependant on features and quality, and $40 to $150 or maybe a tad more for second hand units.

An oft asked question heard on the CB bands by newcomers to the hobby goes something like "what is best: UHF or 27MHz CB, and what mode - AM, FM or SSB?" The answer is not as simple as you might think. It's a matter of 'horses for courses'; what might be best for you, might not suit your mate down the road.

THE UHF CB SERVICE

UHF CB equipment is generally more expensive, but not tremendously so. Unlike 27MHz equipment, UHF CB comes in one flavour only: FM. Frequency Modulation, or FM, is a very crisp, clear and efficient way of transmitting your signal, and suffers less from the effects of noise than does AM or SSB. The higher frequency, and thus, shorter wavelength of UHF CB (477MHz at about 0.6 metres wavelength as opposed to 27MHz at about 11 metres wavelength) means shorter, more convenient sized antennae which can lead to building practical antennae that offer 'gain' and much less atmospheric and man-made noise. On the other side of the coin, UHF signals do tend to suffer more attenuation, that is, the signal becoming weaker, when passing through buildings, trees, or passing over difficult terrain.

UHF signals also do not 'skip' or bounce off the ionosphere and thus do not regularly travel the large distances that 27MHz signals can. Interestingly, there is an entirely different atmospheric condition that can cause UHF signals to travel further than they normally would, called tropospheric ducting.

Generally, UHF CB has a range of about 100 km between two well located base stations, or about 15 km between mobiles, however these distances will vary given the height of and terrain between two stations, much more so than 27MHz stations. The voice quality is excellent, even better than the telephone at times, and the quality is maintained almost to the fringes of coverage, rather than the slow but progressive increase in noise and general degradation of AM and SSB on 27MHz CB. One important feature on UHF CB is the availability of repeaters - a device suitably located on a mountain or hilltop so that two UHF CB stations can relay their signals through the repeater and communicate much further than they

normally. With this arrangement, two mobiles some 100 or 200 km apart can communicate, and even further with base stations, but this again is entirely dependant on how well the repeater is located, and the location of the two mobile or base stations using the repeater.

Prices for new UHF CBs range from about $100 for small, low power handhelds, to $600 or more for feature-rich mobiles or handhelds with blisteringly hot performance and quality. Halve these prices for second hand units.

WHAT IS GOING TO GIVE ME THE GREATEST RANGE?

Without doubt, a 27MHz SSB radio will offer you the greatest range when conditions are right for 'skip'; your signal will typically travel some thousands of kilometres, but it is completely dependant on the conditions.

One day, there may be no 'skip' at all, the next, the skip might be running well between Victoria and Queensland, the next day between Victoria and Western Australia. Then there will be long periods, sometimes for a few years, when conditions do not produce skip at all, or at least very infrequently. Without the benefit of 'skip' you can look at about 80 or maybe 100 km range between two well equipped SSB 27MHz base stations.

UHF CB offers very consistent clarity of communications across a local area, say out to 40 km, but can travel up to 100 or more km with well equipped and well positioned base stations.

UHF CB is less affected by noise, both atmospheric and man-made, and this is a very attractive feature for many operators.

Repeaters open up a whole new ball game, with crystal clear communications possible between stations using a repeater for perhaps 200 km.

27MHz AM CB is really only a very local service, and is greatly affected by noise, but the big advantage is that it is very cheap.

How about we compare, blow by blow, the pros and cons of UHF and 27MHz CB:

- Cable losses at UHF CB are greater than at 27MHz, but countering this is that antennae at UHF tend to have higher gain than an equivalent sized 27MHz CB antenna.
- 27MHz SSB is a very efficient way of transmitting your voice, but then again, so is the FM of UHF CB
- The output power of a 27MHz SSB is 12 watts compared to 5 watts for UHF CB, but there is less atmospheric and man-made noise at UHF CB which tends to even things up a bit.
- 27MHz CB signals travel through obstructions and tends to 'bend' around difficult terrain better than UHF CB, but UHF CB will bounce and reflect off large buildings and hence be heard a bit better deep within the 'concrete canyons' of a major city centre.

Without doubt, a 27MHz SSB radio will offer you the greatest range when conditions are right for 'skip'; your signal will typically travel some thousands of kilometres, but it is completely dependant on the conditions.

All in all, UHF CB and 27MHz CB tend to be reasonably equal - where one looses out, the other does better. That is until you add a repeater into the picture; this will extend communications into an area where neither UHF in simplex mode or 27 MHz SSB would have no hope of reaching.

SO, WHAT IS RIGHT FOR ME? UHF OR 27MHZ? AM, FM OR SSB?

There is no simple answer to this question. You need to look at where you are operating from, who you want to talk to, what features you want, and of course what you want to spend. Other things to consider might be: are you allowed to erect outside antennae on your rental property; are you willing to have a less attractive looking outside antenna that offers some gain; or is there any other unusual requirement that would clearly indicate a preference of one type of CB service over another?

If you are looking for short range, cheap communications, then look no further than an AM only 27MHz CB. At the opposite end of the scale, for someone who wants to talk over huge distances as a hobby, then SSB 27MHz CB is the go.

Those users who want clear, reliable, medium range communications would do well to look at UHF CB. For features like scanning, SelCall etc UHF CB is the best bet. If you have had bad experiences with interference to your neighbours TV, then UHF would be safest. Depending on your area, if you just want to pick up the microphone to chat and make friends, 27MHz seems to be more relaxed, but in some areas UHF can be just as informal.

UHF also seems to have been adopted more readily in the country, even taking on the role of a medium range 'bush telephone' at times. 27MHz SSB CB would be best for those looking to communicate into our out of a deep valley, but don't ignore UHF where a repeater may be even better, or there might be a hillside to bounce your signal off.

All this information is just a starting point. Talk to other operators in your area, ask questions, see what works for them. Have a test drive of both 27MHz and UHF CB radios, see which you feel more at ease with, or what you think will serve your purpose best. Maybe you will want to use and end up buying both. In the end, though, the decision is up to you.

27MHz SSB

Higher output power allowable
Very efficient transmission method
Very long range possible with 'skip'
Low cable losses

CB pros:UHF CB pros:

Antenna 'gain' is possible
Very efficient transmission method
Long range possible with repeaters
Low noise
More features like scanning, SelCall etc
Clearest audio
Tends not to cause interference to TVs

27MHz AM CB pros:

Cheap
Simple to operate
Low cable losses

27MHz SSB CB cons:

More expensive
Crowded bands common with skip
Can cause TV interference
Slightly unnatural voice quality
Generally larger antennae
Physically larger radios

UHF CB cons:

Most expensive
Repeaters can be crowded
Can receive interference from other UHF services like taxis, couriers etc
Less forgiving of poor installations

27MHz AM CB cons:

Shortest range
Most affected by noise
Can cause TV interference
Generally larger antennae
Inefficient transmission method

"FLIGHTWATCH 2001" by **BOB BELL**

ACUTE SHORTAGE OF VHF AERO FREQUENCIES IN THE USA - WILL THEY GO DOWN THE SAME 8.33 kHz SPACING TRACK AS EUROPE?

"It is impossible to overstate the seriousness of the situation" – **ANTHONY J. BRODERICK, FORMER FAA SENIOR STAFFER**

The radio airwaves that we monitors program our radios with and use to hang on every word spoken by pilots and controllers began to saturate with activity in the European region around 1994, and by 1996 the frequency congestion problem was becoming very serious.

In the mid 1990's, the International Telecommunications Union (ITU), a United Nations agency that controls radio frequencies worldwide seemed to settle the issue by adopting a long term digital solution plan, termed "VDL-3" (standing for "VHF Datalink, Mode 3"). But this system, which the USA's Federal Aviation Administration has termed "Nexcom" was going to take a full nine to twelve years to implement, and some insiders predicted it would take closer to twenty years to bring to fruition in Europe. A new generation of radio transmitting and receiving systems would have to be developed and manufactured (by the thousands of copies!) and thousands of ground station antennas and aviation radio ground broadcasting facilities would need replacement. Then there was the question of funding. Costs were projected to be enormous. Money that airlines would prefer they didn't have to spend in the tight fiscal times of that era.

In April of 1996, Collins Radio's Air Transport Division put forward a paper entitled "The Collins Solution", where they put forward a radical plan to change the traditional 25 kHz channel spacing to 8.33 kHz.

International Civil Aviation Organisation (ICAO) and the ITU were totally aware of the problems with the limited number of radio frequencies in Europe and the huge increase in traffic and demand for radio channels, and right from the outset viewed the "Collins Solution" as a serious option. Even in the light of existing radios used in aircraft having to be modified for 8.33 kHz, or new 8.33 kHz-capable radios procured and fitted to airline fleets.

A BIT OF AVIATION RADIO HISTORY RIGHT NOW

Back in 1958, channel spacing was 200 kHz, and in that year, it was changed to 100 kHz. In 1959, the existing aviation vhf frequency range worldwide was 108 to 132 MHz. In that year, the band was increased to 136 MHz. In 1964, the 100 kHz channel spacing was further decreased to 50 kHz, and in 1974, even further decreased to 25 kHz. In 1979, the 136 MHz upper limit was raised again to 137 MHz, with the aero vhf band now 108 to 137 MHz. All of these technical changes have retained the same well-proven amplitude modulation, with double-side bands.

When Collins introduced their "fix-it" Collins Solution to ICAO for consideration in 1996, there was an acute shortage of vhf communications capacity in Europe. The areas with the maximum congestion were the areas near major airports such as Amsterdam, London, Paris, and Frankfurt.

Upper Region airspace, higher than Flight Level 200 (20,000 feet) was the airspace where most of the serious congestion was taking place. As the spectrum congestion gradually got worse, it gradually extended outwards and lower flight levels also started to become heavily affected by the super-busy radio frequencies.

If absolutely nothing was done to alleviate the problem, ICAO were well aware that at the rate the problem was getting out of hand, by the turn of the century things were going to be unmanageable. By the year 2000, a circular area with a radius of 1,000 kilometres around the centre point of the radio congestion (Lat. 50 00N / Long. 06 00E) would have been completely saturated with traffic and lack of radio channels to accommodate it properly. This wasn't just in "peak" periods during the day. We are talking about the whole working day, each day of the week.

And Russia was at the time re-emerging into the world community after "Glasnost", and was quickly becoming part of Greater Europe again. As such, there was also a need for radio frequencies in the new and expanding Russian regions. Those regions have in fact become very important to air traffic trying to save time and fuel and track over the North Pole. Airlines who wish to fly Polar Great Circle tracks from places like Bangkok and Singapore to London and other European destinations.

Air traffic control in Europe at the time the "Collins Solution" was put forward as a serious option was handled by individual countries. It wasn't run by a master organisation with federal integration like it is in the USA with the FAA, and Australia with AirServices Australia.

Europe at the time (1994-1996) was the area with the problem and the rest of the world (including the America) was not suffering along the same lines. The Americans stated they were going to be able to utilize existing 25 kHz channel spacing for what seemed at the time to be many years to come. But more conservative estimations for the United States of America were that it could hold out until around 2005, a figure that now as I write this feature in 2001 is looking like it was not really an accurate prediction. They are even now starting to feel the pinch with available frequencies in the USA, and by 2005, the situation (like Europe in 1994) will become worse and worse, and finally reach unmanageable saturation proportions. Even Digital Datalink, both in VHF with Acars, and CPDLC (aviation satcoms) are not really helping to lessen the load.

12.5 kHz channel spacing instantly doubles the available radio channels from 760 to 1,520 channels. With the change to 8.33 kHz channel spacing which was called for by Collins in their paper to ICAO, available channels went from 760 to 2,280 frequencies. Five groups in Europe worked out the issues and decided on the changeover to 8.33 kHz. The groups were EATCHIP (European ATC Harmonization and Integration Program), AMCP (Aeronautical Mobile Communication Panel), APT (Airspace Planning Team), UK NATS VCC (United Kingdom National Air Traffic Services VHF Communications Committee), and EANPG (European Air Navigation Planning Group. The results of the meetings were published as written reports and submitted to the ITU and ICAO for endorsement at the ICAO COMM Ops meeting held in March/April 1995.

Before 8.33 kHz was decided on, 12.5 kHz, 8.33 kHz, 6.25 kHz, and 5.00 kHz were all considered. Both 12.5 kHz and 8.33 kHz were AM DSB (double side band), and 6.25 kHz and 5.00 kHz were AM SSB (single side band).

Implementation time frame was decided upon as "by January 1998", and the costs were to be kept down if possible to lessen the burden on user airlines financially.

On 1 January 1988, compliance with 8.33 kHz spacing was required for European Upper Airway Sectors by ICAO of airlines in the region.

New 8.33 kHz radios were directly interchangeable with existing 25 kHz spacing radios, so the new equipment plugged directly into racks occupied by the older radio gear, with minimum aircraft wiring changes or additions. A ground on the rear of the radio panel configures the panel for 8.33 kHz operation. And this is evident by the presence of a sixth digit on the frequency display readout.

The frequency selected on the panel determines whether the VHF radio transceiver operates with 8.33 kHz spacing, or 25 kHz spacing, without the need for a switch to be thrown to change from one spacing to the other. The digital VHF control panel for 8.33 kHz operation transmits two "ARINC 429 labels". When the aircraft is transmitting in 25 kHz channel spacing, a label "030" is transmitted, and "047" is transmitted for 8.33 kHz spacing. If an 8.33 kHz panel is mixed with a 25 kHz radio, or if a 25 kHz panel is mixed with a 8.33 kHz radio, the system operates normally in the 25 kHz channel spacing environment. But to get full 8.33 kHz operation, an 8.33 kHz panel and an 8.33 kHz radio must be used together. Some airlines chose not to purchase new radio equipment to operate in Europe after January 1, 1998 and had their existing aircraft mounted radios modified, including the IF amplifiers, modulators, synthesizers. Cost of each conversion was about half that of buying a new 8.33 kHz transceiver "off the rack".

Most of the equipment being used every day in Europe within the 8.33 kHz channel spacing region has incorporated design changes to the frequency synthesizer to provide transceiver and receiver RF sources for 8.33 kHz spacing, with frequency stability better than 0.0001%. An 8.33 kHz filter is added to the IF strip, along with appropriate switching, allowing either 8.33 kHz or 25 kHz, as selected. Transmitter modulation circuits are changed to compress audio frequencies and limit transmitter bandwidth. For aircraft equipped for Acars, or Digital Datalink, there was no wiring, connector, or pin-reassignment required. The only change they had to make was the addition of a grounded discrete wire from the VHF radio transceiver to the control panel to advise that the transceiver was 8.33 kHz capable, and the addition of the ARINC 429 label "047".

Qantas, Air New Zealand and airlines from the South East Asian and Pacific Regions which visit Europe as part of their route structure had to have the new radios fitted capable of 8.33 kHz of course, just like European airlines did. Radios were able to be either fitted by the manufacturer on new aircraft, or modifications were carried out in avionics facilities in Seattle, Los Angeles, Dallas, Atlanta, Miami, London, Toulouse, Singapore, and Melbourne. Note: Acars cannot be handled on 8.33 kHz spaced frequencies. Datalink transmissions are being restricted to 25 kHz channel spacing frequencies.

This is the way the Europeans set up their system:

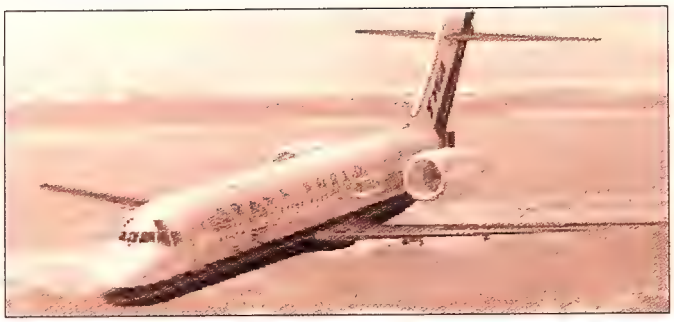
- 118.0 to 121.4 MHz in 8.33 kHz steps
- 121.6 to 123.05 MHz in 8.33 kHz steps
- 123.15 to 136.475 MHz in 8.33 kHz steps

Frequencies not assigned to 8.33 kHz steps are:

- 116.0 to 117.975 (military)
- 121.425 to 121.575 (includes emergency 121.5 distress channel)
- 123.075 to 123.125 (includes 123.1 emergency SAR channel)
- 136.5 to 136.975 (includes the 136.9 to 136.975 reserved for datalink communications)
- 137.0 to 151.975 (reserved for military use)

Now, in the United States Region, lack of radio frequencies is quickly becoming as significant as airspace congestion and lack of runways to handle the huge traffic volumes. The USA's Federal Aviation Administration (FAA) and their airlines are in locked dispute at the moment about how to permanently address the problem.

The airlines want the European 8.33 kHz system adopted, which is certainly proven and time-tested, having been in place since 1 Janu-



ary 1998. The airlines are arguing time is running out quicker than projected and that the original estimate of "2005" for frequency exhaustion is inaccurate. They argue by 2003, the USA airspace management system will be in serious trouble unless it has something definite in place as a solution by then.

Conversely, the FAA are arguing for a digital solution. This long term option could solve the problem for generations, but the program would take nine to 12 years from now to implement. The system favoured by the Federal Aviation Administration is Time Division Multiple Access (TDMA). This system retains the current 25 kHz channel spacing, and time division multiplexes four digital voice or data modulations on the same RF carrier. It is certainly an elegant technical solution with many advantages and few disadvantages. However, it would involve complete disruption and change-out of the airborne and ground equipment. For this reason, it was not considered to be time frame and cost efficient for the European frequency saturation and congestion situation. Aviation insiders in the USA have known for a decade or more that the crunch was coming, but the solution has been delayed by extensive research and development of emerging technology, and need for worldwide airline and atc agreement on whatever solution is implemented.

"Flightwatch 2001" spoke to Anthony J. Broderick, former FAA Associate Administrator for Regulation and Certification, who has served as an advisor on the whole frequency saturation issue in the USA region. He told us: *THE SITUATION IS SERIOUS.*

"It is impossible to overstate the seriousness of this problem. The air traffic delays of our last summer period are only tiny hints at what is going to become an everyday affair soon. The air traffic control system is already suffering, and FAA Administrator Jane Garvey must make the frequency problem a top priority. Otherwise, soon the system will not be able to handle the growth required. By 2005, our initial date that was bandied around, it won't just be starting, it'll be gridlock by that time on the frequencies. Any flight someone makes involving connecting with another flight will literally become a day-long excursion!"

Radio is literally the lifeblood of air traffic control. Any major airport requires dozens of radio frequencies, with separate channels required for controllers to converse with pilots while at the ramp aerobridge gate, taxiing on the apron, taking off, climbing out on departures, and climbing to and cruising high level airways. Just on this one point, each En Route Centre in the USA, of which there are twenty, require dozens of frequencies allocated to each Centre just to handle the high altitude traffic.

Inside these Centres (spelled as CENTERS in the USA), rows of computer radar workstations are in use where each controller is in charge of a "Sector". When one Sector becomes too busy, common practice is to split the Sector into two separate ones. But then the new Sector needs it's own radio frequency.

In order to cope in recent months, the USA's Federal Aviation Administration has resorted to "artful scrounging". One example is the Cleveland ARTCC (Air Route Traffic Control Center) which controls high altitude traffic over a large part of the Great Lakes area and Ohio Valley, USA. That Center was forced to use a radio frequency newly originally assigned to an automated weather information station to deal with a serious traffic choke-up in their Sectors where several high level airways were converging.

The automated weather station had never actually been fired up and used. It will now have to gather dust for a while longer, and the weather information actually presented in live voice on other frequencies, such as Towers. This adds to controller workload and stress.

Other options evaluated were:

1. Conversion of numerous radio navigation frequencies from Morse Code (CW) beacons to

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air traffic control voice channels.

2. 121.5 MHz emergency "guard band" has six unused channels around it, and some aviation industry insiders in the USA want those radio channels utilised as well.

Further to frequency usage, radio frequencies are also required for aircraft on approach that are being routed to airports for landings. Then, more frequencies are required for light aircraft to use in their designated lanes, so they don't interfere with airlines communicating with radar controllers. And as well of course there are terminal frequencies for airways clearances, apron clearance delivery channels, air-to-air, and company radio channels required.

In addition, lots of frequencies are swallowed up by either ATIS (Automatic Terminal Information Service) broadcasts, or Automated Weather Stations.

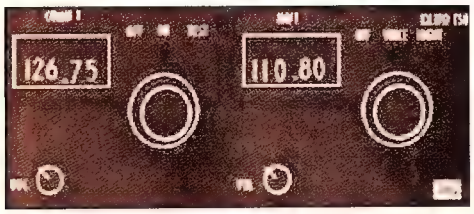
These stations offer terminal and meteorological information on a round-the-clock continuous stream basis. And with the introduction of Digital Datalink (Acars) around a decade ago, there is also an ongoing need for frequencies to be set aside for those purposes as well.

NEED OUTSTRIPPING SUPPLY

It is clear that right now in the USA, the need for radio frequencies is outstripping the supply. The USA's airlines are arguing for the implementation of the now-entrenched European 8.33 kHz channel spacing system as the answer. They argue that many US-based airline aircraft, 20% of them in fact, already have the 8.33 kHz radios fitted. These aircraft regularly fly in European skies, and you can't fly in Upper Level airspace in Europe without 8.33 kHz radios on board. The main drawbacks are that it is a voice-only option, with no Digital Datalink transmissions able to be made on the 8.33 kHz spaced frequencies. Datalink requires the broader bandwidth.

And to add insult to injury, the Europeans are already announcing they are running out of the "Collins Solution" 8.33 kHz radio frequencies after huge growth within the airline industry recently in Europe. A solution for Europe has now got to be found by no later than 2007!

Whatever the decision is, for the USA, and now again, for Europe, by 2007, it is going to be a monumental one. That's clear. Everyone in the industry is now realising that short term solutions are merely putting off the day of reckoning that will eventually have to be faced up to. And the Americans don't want to sink "band-aid billions" into a system only to have to replace that very expensive "solution" just a few short years down the track.



A Bendix King KX-170B

HYBRID SOLUTION IS OF NO USE

A "hybrid" solution is perhaps to use the 8.33 kHz option in addition to Arnica's (Aeronautical Radio Incorporated) Digital Accurse broadcasts in the USA. Digital Databank cannot be used to tell pilots to change altitude or turn. That must be done in voice, (except in the case of long international over-water flights where CPDLC (Controller Pilot Databank Communications) are used for this purpose through satellite technology in the L-band.) Arnica's James L. Pierce and American Airline's Russell Chew told R&D's "Flightwatch 2001:

"We want to unload routine voice communications to allow controllers time to do what they are employed to do, that is, actively control air traffic".

The logic behind that statement is that at present, on recently collected information, 40% of air traffic voice communications are simply to tell the pilot to change to another radio frequency for the next Sector operations. That definitely could be done on Acars Datalink.

ARINC's James L. Pierce believes that 8.33 kHz spacing is "inevitable", but states that it is "imperative that we don't go too far down that road because you're going to have trouble extracting yourself and going to a more long-term solution". And the Europeans have just proven to the world that 8.33 kHz is not the ultimate long-term frequency assignment saviour they all thought it was back in 1998 when it was implemented.

BAND AID SOLUTIONS?

I believe that the USA will "band aid" it's air traffic frequencies by insisting on 8.33 kHz as has Europe, but will also implement a massive and costly infrastructure building program which may well take twenty years to put into service. That TDMA solution is probably the only one that will save the system from total meltdown later down the track.

And Australian airspace and air traffic management? Our airspace while considered "busy" by some is really not that busy at all.

Our 25 kHz channel spacing will be quite adequate for quite some years yet, and we do not have a frequency congestion problem here. But because our international carriers do operate in world regions where congestion is high, and technical solutions have to be found for frequency overload in those areas, we will always have to "keep up" and fit the evolving radio technology to our international airline aircraft.

$1.5 Billion Worth of RF Spectrum

– Is it worth 17 cents a day to **YOU**?

The Radio Frequency spectrum is worth around one million dollars per Megahertz to commercial interests, and we Amateurs have the use of over **1.5 GHz** of it between 160 metres and 1.25cm – plus nearly 22 GHz more in the higher bands.

RF spectrum is in constant demand by commercial spectrum users.

Your Amateur licence fee does not guarantee you continued access to any of these bands, but for as little as ***17 cents a day***, you can help keep the Amateur Bands in Amateur Hands.

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High powered exports: Emtron's amplifiers

The international market is a familiar place for

Rudi Breznik and his team, of Emtron, Sydney

While we have seen his repertoire of amateur radio products grow and diversify over the years, it is his range of ceramic tetrode linear amplifiers that has really hit the big time internationally, and needless to say, that range has become the prime focus for his organisation.

Radio and Communications took the opportunity to drop into Emtron headquarters recently to take a fresh peek at its latest range of gear and to check out the manufacturing production line - to see just what things makes these latest products tick so well.

The last time we dropped by was several years ago, when his new amplifier design (singular) had just started to make people sit up and take note. So for us, his current range of seven different amplifiers represents a very big jump in manufacturing commitment in comparison to that earlier visit.

CONTINUAL UPDATING

Quite a number of specific things about the construction of his amplifiers have changed in that time, too. While the same almost-fanatical commitment to standards and quality exists at Emtron, such things as new valves (tubes), new capacitors, new power transformers and a new highly upgraded metalwork design have necessarily brought about big changes.

What most impressed us during our visit though, was Rudi's extreme confidence in all of his products. It is now a very long time since he had any design concerns regarding such matters as stability, heat, arcing, spurious radiation, acoustic (cooling) noise or any of a long list of things that can plague high powered amplifiers.

Anyone that has had a go at making their own pentode or tetrode linear amplifier will appreciate just how easy it is to come to grief because of any number of causes. RF overdrive, overheating, flashover between screen and anode, and even a vaporising screen grid due to minor error on the part of the user, are all to familiar problems.

FOUR YEAR GUARANTEE

It is with raised eyebrows, therefore, that we noted that all of the amplifiers now sold by Emtron carry a full four-year guarantee - and wait for it - that includes the tube, too. So with 80 per cent of his regular orders coming from Japan, USA, South America and more than eight8 European countries, he sure knows how to take a challenge on board with this guarantee!

How is such confidence possible? Once again, we were permitted to have a go at an amplifier on the test bench, with the stated challenge of trying to destruct one of his amplifiers by operating it poorly. We tried everything, switching it on and off really quickly, overdriving it, giving it very long key-down times with really poor tuning - the lot! Yet despite our efforts, that particular amplifier still lives on, just as well and as happy as ever! Some of the reasons for this 'bullet-proof' characteristic appear to be that:

- the ceramic tetrodes used in the amplifiers are made by Svetlana - and they are military service tubes whose weight and solid, silver plated ruggedness almost defies belief. These tubes barely become warm after long key-down periods.
- extreme care has been taken monitoring the screen grid operational status. Protection against excesses in either positive or negative current excursions is offered, along with front panel screen current monitoring.
- in the unlikely circumstance that a flashover occurs, the flashover protection circuitry is itself protected. That is, it employs a non-self-destruct philosophy.
- an overkill in the KVA rating of the high magnetic flux density power transformers for each amplifier exists, assuring that the power supply components stay quite unperturbed even during extremes in operating conditions.
- the switch-on characteristics of the AC supply have been very carefully planned. People who love the sound of an amplifier going BONGGG when you switch these devices on, will be totally disappointed by this. The slow ramping up of all voltages at switch-on time in the Emtron range ensures that there will be virtually no shock to any of the internal components they use.
- modular design and highly simplified access to components means that should a fault occur, access to changeover components is a screwdriver-only operation. Nope, no soldering is needed at all.

What also impressed us was the fact that the amplifier line-up meets current USA FCC standards. The easy one of these stringent regulations to meet is the one whereby amplifiers cannot be shipped with access to 24 MHz operations and above (CB operators in the USA apparently snap up anything that can amplify their 27 MHz signals) - unless of course, an amateur radio licence is produced first. The more difficult criterion to meet though, is the level of the second harmonic that can legally be produced by an amplifier in that country.

Imagine designing an RF amplifier whose maximum second harmonic emission is limited to 50 milliwatts. That might not be too hard if the device is a 60 milliwatt transmitter. But with up to 1500 watts (continuous) power being allowed over there, that 50 milliwatt figure suddenly represents a challenge, a 44dB challenge at least. That severe requirement is met at Emtron by the use of optimum Q, 'PI-L' circuitry including 4:1 RF transformation and silver-plated tank coil design.

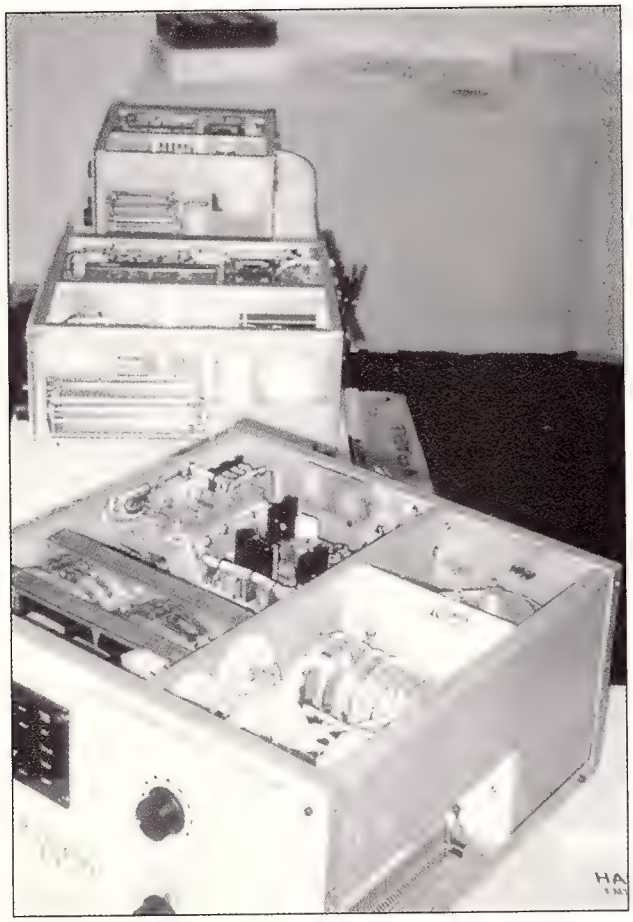
Local readers might wonder about the rather large power output capabilities of the range and their relevance here. Does anyone use them here?

KEY-DOWN CAPABILITY

Sure! For a start, it is the key down capability of the DX series that should be considered. Operating the amplifiers within the limits of Australian law means that these amplifiers are just loafing along, so we simply cannot imagine how even a single component could be stretched beyond its means, even over many years of operation. With low heat, low wear and tear and the overkill in the ratings department everywhere, these amplifiers should last a VERY long time indeed, even if they are run at full power (into a dummy load in our country, naturally), let alone at our legal limit power levels.

We have seen designs from other manufacturers where one decent whistle into the microphone will see yet another set of 811As blush

Imagine designing an RF amplifier whose maximum second harmonic emission is limited to 50 milliwatts. That might not be too hard if the device is a 60 milliwatt transmitter. But with up to 1500 watts (continuous) power being allowed over there, that 50 milliwatt figure suddenly represents a challenge, a 44dB challenge at least.



and bite the dust. Sure, such delicate glass tubes are far less expensive than any one of the brutish looking ceramic tubes used by Emtron, but if you are even slightly aberrant in operating some of those lesser amplifiers, the costs will mount, to say the least. Allow plenty of time for their components to cool after a longish QSO too. But worse, operate AM, FM, SSTV or RTTY with one of them for too long and you can definitely say goodbye to a few more tubes. Now, maybe you can see why amateurs are also snapping up Rudi's amplifiers here, but for reasons of economy rather than for some sort of desire to break the law.

PRICES START AT $3000

Perhaps a quick thumb through the Emtron product line up would be in order here. Prices range from just above $3000, upwards. For details on pricing or other matters, you should e-mail or contact Emtron directly.

While Emtron's products are 100 per cent Australian made., the valves, bandswitches and output capacitors are not. Variations in the worth of the Aussie dollar don't help with these mega-costly items either. By the way, you don't get much change from $1000 if you buy a high-powered ceramic similar to the tubes Rudi uses these days. All of his amplifiers use a single tetrode in a passive grid configuration. And all require up to 60 watts of RF drive.

DX1 SERIES

DX1b. This is the smallest amplifier in the series. It uses a single GU74 (also known as a 4CX800B) and offers 800 watts of continuous key-down output power. It uses two analog meters and, as with all of the amplifiers in the range, has a QSK switching option at extra cost.

DX1v. This is essentially the same amplifier as the DX1b really, but operates from 50- 54 MHz. You won't find a bandswitch on the front panel anywhere.

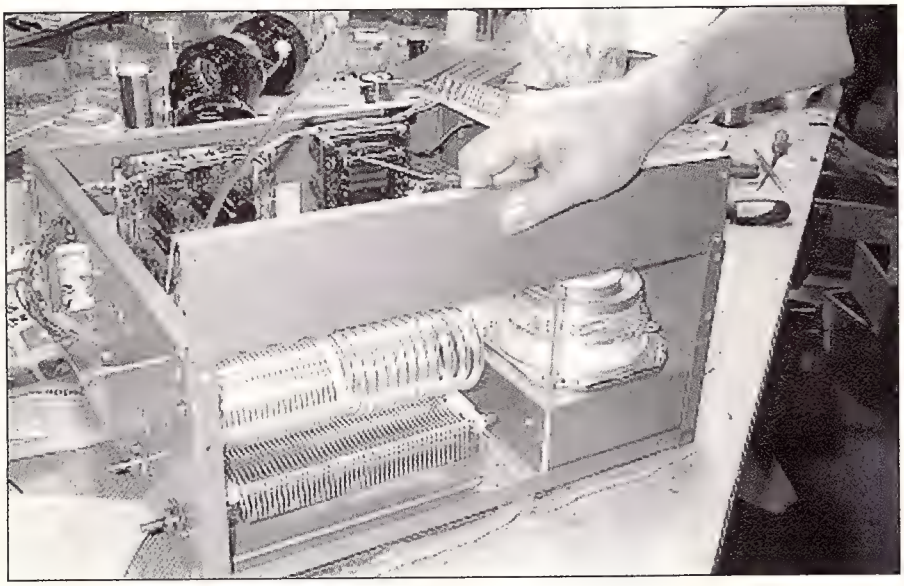
DX2 SERIES

DX2. This is by far the best selling amplifier series from the Emtron stable. It uses a single GU84 (also known as a 4CX2500E, where E stands for, would you believe, Emtron) and offers 1500 key-down watts of continuous power output. The preferred metering system is all-digital, but for the time, an option to have analog metering installed in its place is available. Again, a QSK switching option is available at extra cost.

DX2v. This is virtually the same amplifier as the DX2 and has the same specifications but for the fact that it operates from 50-54 MHz. You won't find a bandswitch on this front panel anywhere.

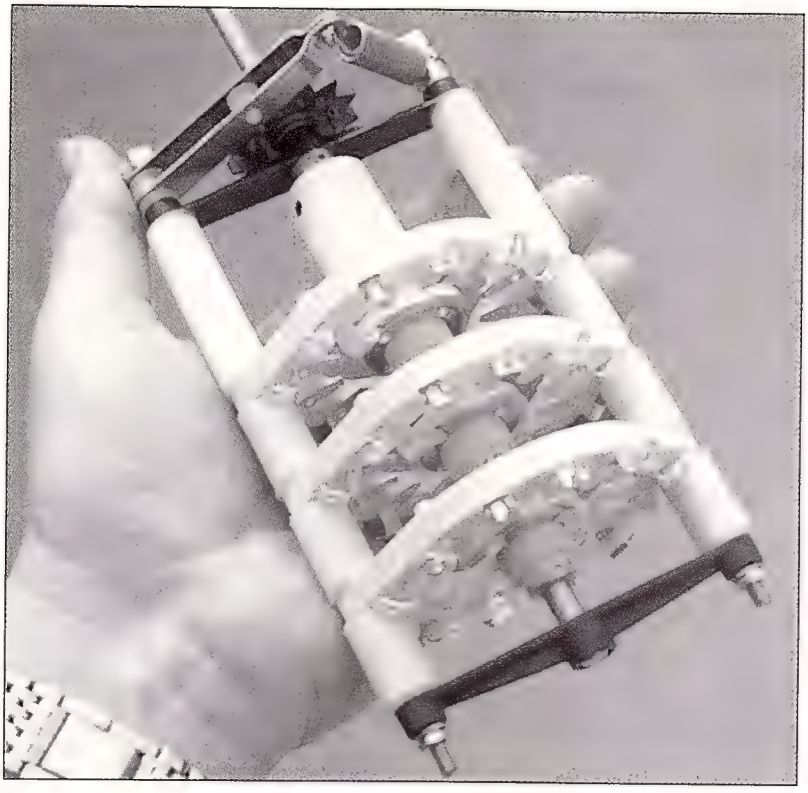
DX2sp. Again, this is basically the same amplifier as the DX2 but has a few special features. For a start, a far bigger transformer and bandswitch are fitted, and a far higher voltage and current rated set of capacitors live their life in the 'tank' circuit. This combination allows the same tube to run a cool 2000 watts of continuous RF output - or if SSB is your mode,

All of the metalwork comes apart in sections. And what metalwork too! The 2mm anodised aluminium (3mm in the DX3) all comes apart so easily. The accuracy of the various sub-chassis work is just astounding. You should see the level of precision of the screw holes, metal edges and so on. I mean, this is real work-of-art stuff!



the generous 58mfd at 3.6KV capacitor bank will let you send a whopping 2500 watts peak power out into the ether.

DX2spV. This is the same amplifier as the DX2sp and has the same power-determining components as that model, but it operates from 50-54 MHz. Again, you won't find a bandswitch anywhere on this front panel.



DX3

This is the real brute of the Emtron range and is really aimed squarely at the commercial market. Many short-wave broadcasters now use an Emtron DX3 to linearly amplify their signals to the 3000 continuous level. In peak mode, this model is capable of 4000 watts of power, this time through the presence of a 116 mfd capacitor bank. The DX3 is far larger, heavier and much more expensive to produce than the 'smaller' models but has nevertheless, been ordered by some enthusiastic overseas radio amateurs as well. I guess they'll be heard quite well, snigger, snigger...

Antenna switching in all of the amplifiers is achieved via the use of relays. The 50-54 MHz amplifiers use a beautifully constructed coaxial relay while the HF amplifiers use an open-construction, really heavy-duty relay. As we have mentioned, an optional extra is to buy the QSK switching system, where a really snazzy, but small vacuum relay does its thing through some sophisticated timing circuitry.

LOW-NOISE COOLING

We mentioned earlier that a huge reduction of fan noise has been achieved in the recent designs. By ducting air through the side (or back - you choose) and then through the RF coils and power supply sections before it enters the pressurised final amplifier box, a wide range of advantages is gained - not the least of which is noted in the reduced acoustic noise levels. The 72 cfm turbine fan sure does its work well, too.

We mentioned before that the 'DX' range of amplifiers is built in modular fashion. All of the metalwork comes apart in sections. And what metalwork too! The 2mm anodised aluminium (3mm in the DX3) all comes apart so easily. The accuracy of the various sub-chassis work is just astounding. You should see the level of precision of the screw holes, metal edges and so on. I mean, this is real work-of-art stuff! The electronic modules, which are actually assembled by sub-contractors, are all so easily accessible as a consequence. The modules consist of the

- control
- display
- soft-start AC
- power-supply and
- QSK modules.

Should anything go wrong with one of them, just drop in a changeover, and all should be well again.

Amplifier monitoring includes temperature, anode current, overdrive and output SWR monitoring. Should the temperature rise beyond 180 degrees, or excessive plate current be drawn, then the amplifier simply bypasses itself for three minutes (the DX station will probably still be there).

If the overdrive condition arises or if the SWR rises beyond 2.6:1, then that three-minute delay becomes a two-second delay. You get a tick-tick sound which, believe me, warns you well. Reduce drive or fix that antenna and you are back in the running to get that station.

This is much better than completely shutting down the amplifier as some designs do. If the temperature of the finals amplifier rises beyond 140 degrees, then the turbine fan increases in speed.

Second harmonic suppression is far better that 44 dB and IMD (we saw it on their spectrum analyser) is better than 35dB below the rated output. The various weights and dimensions and AC requirements of the DX series varies considerably and again, further detail can be found on the Emtron Website.

The DX3 is special in many respects. One is that the transformer is too heavy to ship already mounted in place, so it is packed in a separate, but cute plywood box. It is a snap to install (no soldering needed) and mounts on a specially reinforced base-plate.

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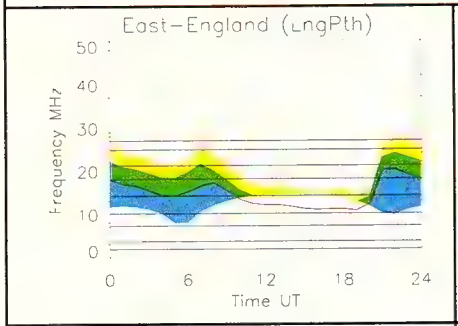
SUMMARY

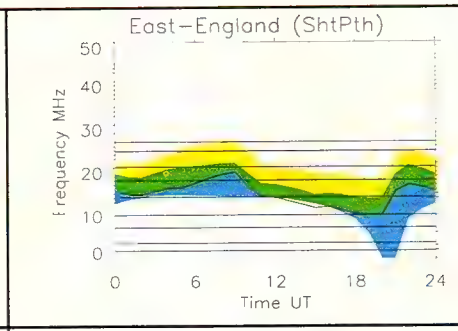
It is impressive enough that a company can successfully manufacture amateur radio products in a country with so small an amateur radio population as ours - but to then export such a range of devices so successfully is a wonderful effort. Just to meet the orders gained at the Dayton or Freidrichshafen amateur radio conventions alone, the factory production line is kept busy for months.

R&C congratulates this all-Australian manufacturer and stands impressed at its magnificent achievements. We thank Rudi and his team for welcoming us to the factory and for offering such time and energy to us - and at a peak time production, too. We look forward to visiting again one day!

You can E-mail Rudi at emtron@emtron.com.au or visit his Website at http://www.emtron.com.au

Propagation For





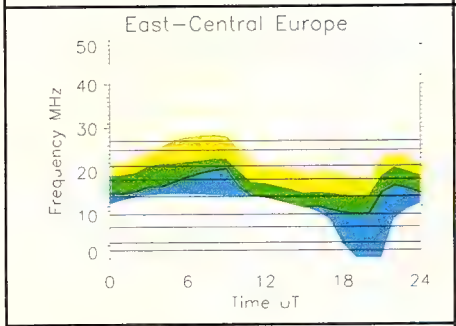
ABOUT THESE CHARTS

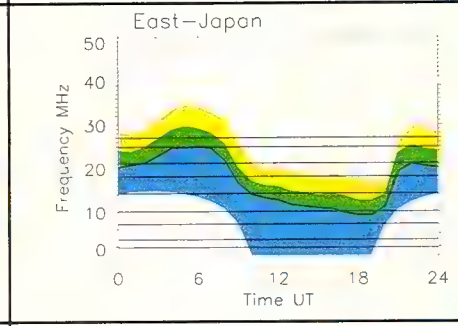
The data on these pages are graphs showing forecasts for expected HF operating conditions between Australia and a number of important DX destinations. The information they contain is prepared by **IPS Radio and Space Services**, a division of the federal Department of Industry, Science and Tourism. IPS monitors changing radio conditions — which are affected most greatly by fairly predictable changes in solar activity — and issues reports and warnings based on that data.

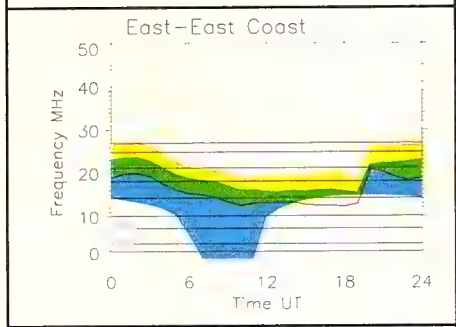
Stations in the eastern half of Australia should refer to graphs on the left hand page. The data on the right hand page is calculated for stations in the western half of the continent. Of course, if your location is in the middle of the continent try reading them *both*... then make an educated guess.

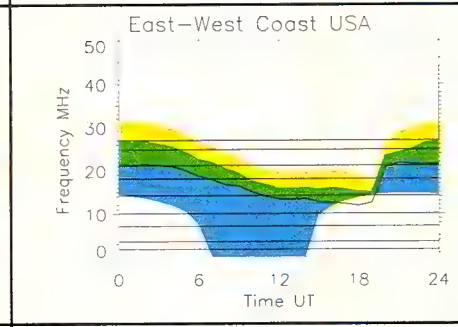
The horizontal axis of each graph represents the hour of the day expressed in Universal Co-ordinated Time or UTC ('z'). The vertical axis shows the entire HF spectrum with a horizontal line representing each HF amateur band.

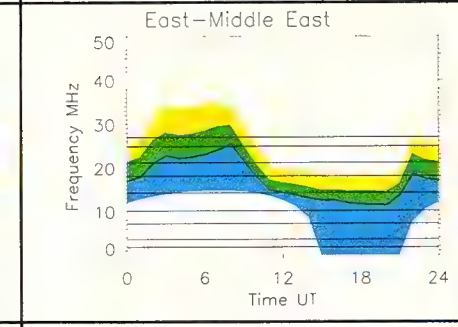
The maps are easy to read. First go to the map which looks closest to the area in which you are interested. Look *up* from the time and *across* from the frequency to the point at which the two variables merge. Note which grey scale — if any — appears at the intersection of the particular time and frequency combination for that area and refer to the legend (right) to find the sort of propagation most likely to apply. If the space is blank the forecast is not good — your time and frequency combination is unlikely to allow communication to the destination station.

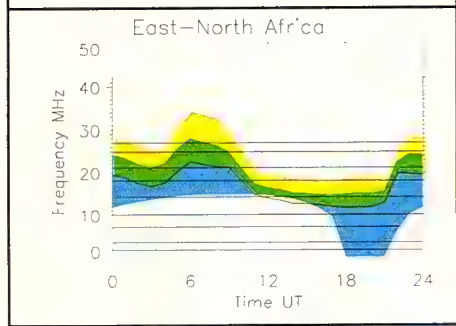


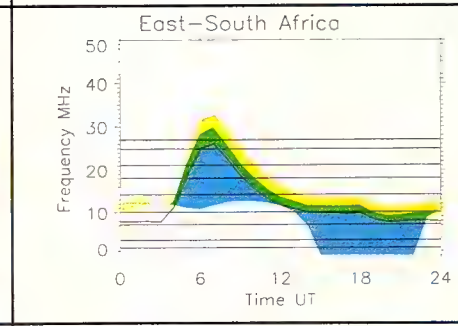


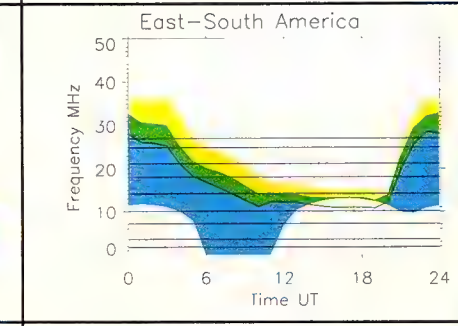


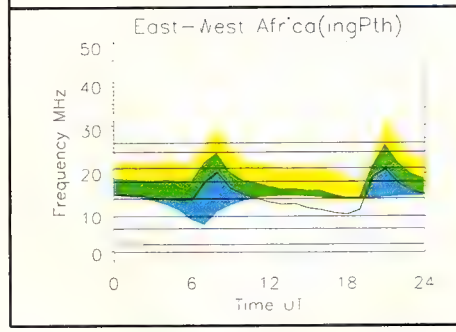


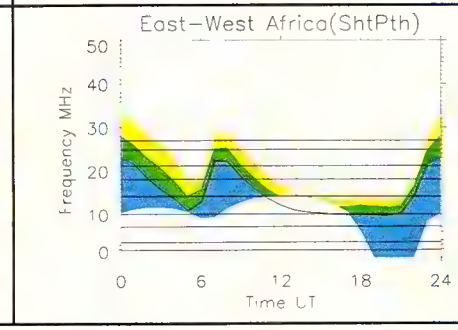


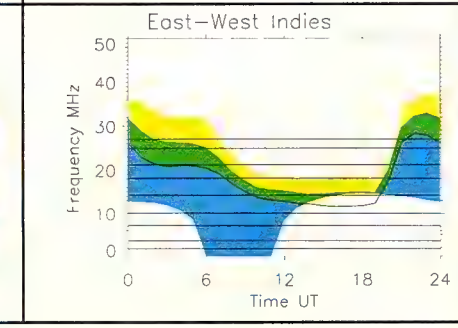












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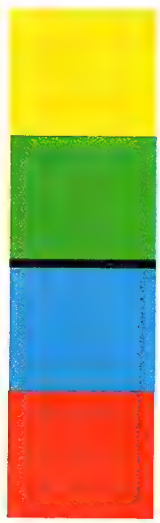


LEGEND

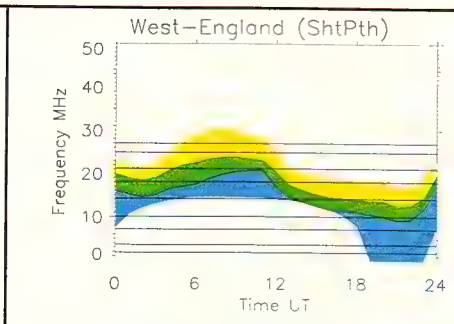
UD Upper Decile — You have a 10% chance of getting through.

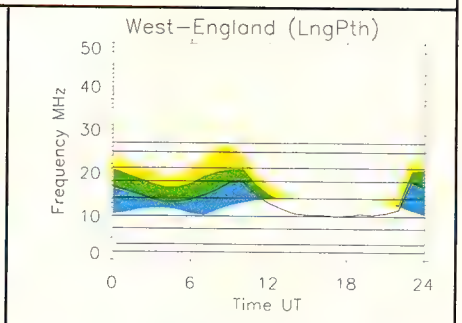
MUF Maximum Usable Frequency. 50% chance to get through.

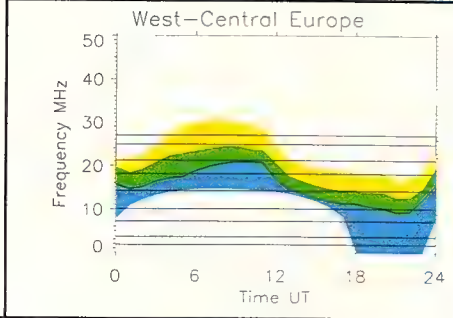
OWF Optimum Working Frequency. 90% chance of a contact.

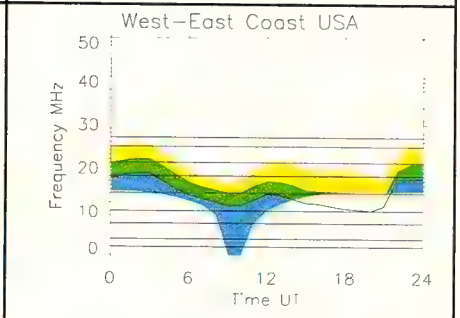
EMU E-layer Maximum Working Frequency.

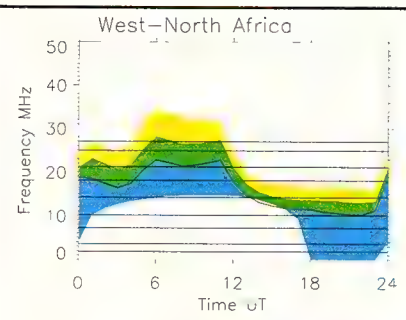
ALF Absorption Limiting Frequency. Lower limit of the usable band.

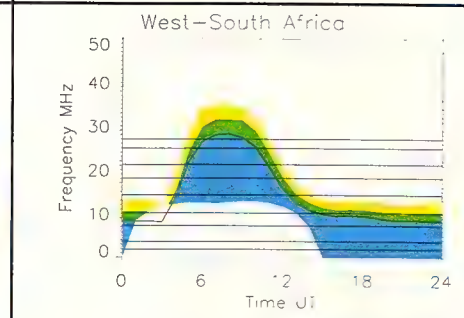


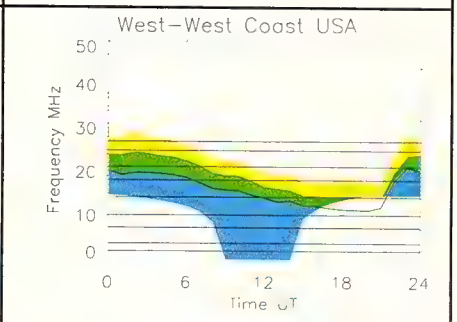


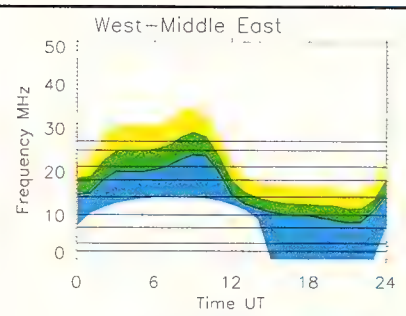


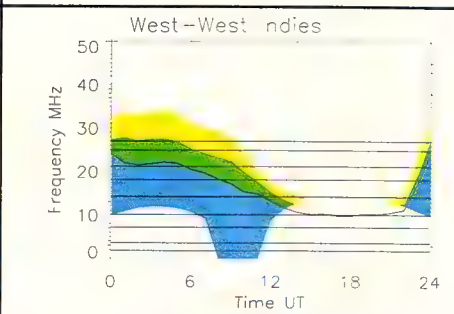


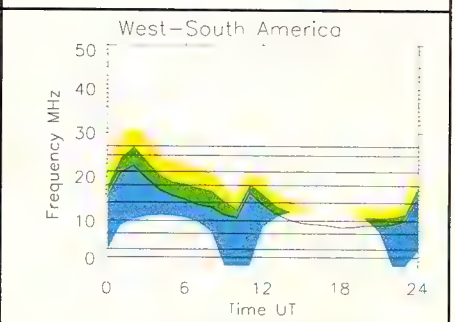


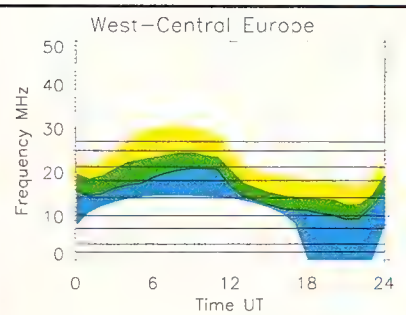


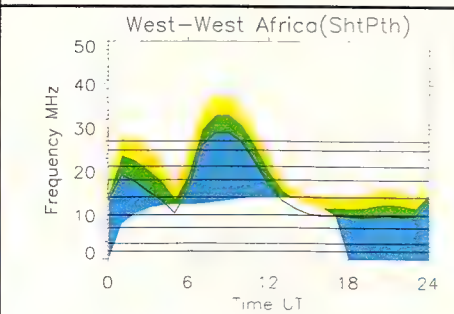


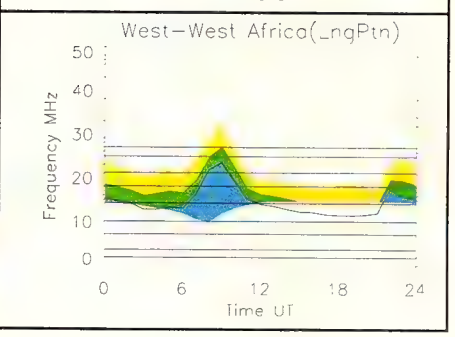












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***NOTE**: Apologies to some readers – their advertisements sent to the previous address were not passed on in a sufficiently clear form to be used. Please re-submit to us and we'll be pleased to run them.*

VK2 AREA

* **Wanted:** Yeasu FT7 or Kenwood TS120V transceiver with books and circuit. phone John, VK2CCC (02) 4342 8587.

* **For Sale** Yaesu FT-847, bought it to put in car to use as mobile - sold the car bought a new one and is to large; brand new from Dick Smith, still under warranty, have fitted Collins filters as well $2950.00 + post. Phone (02) 4861 2092, fax (02) 4861 1536. email awalsh@acenet.com.au

* **Kenwood TS930S** HF transceiver, inbuilt ATU, w/shop manual, overhauled Jan 2001 GC, inc filter, $950. Noel VK2JG (02) 444 39115

* **Wanted,** copy of owners manual for HANDIC 0050 scanner. Will pay any expenses. Contact Brett (02) 96302479 mobile 0408 416 815.

* **Yaesu FT1000MP** with Yaesu FL7000 in mint cond. Reluctant to separate. $5750 Merv Lehn, VK2SML - home (02) 4736 3738, work (02) 9725 5722.

* **Sony ICF SW7600G** Portable All Band Receiver. Mint Condition. Tunes 150kHz to 30MNZ. AM/FM/SSB. Compact 18cmx12cmx3cm. $250 ono. As new. 02 9949 2364.

* **SE 502 SSB** 28MHz Base Station. Tuning range 28.305-28.598 $110. CT160 Valve Tester ex-RAAF. $60. Auto-QE Laboratory Power Supply AC-DC 0-12V SA $80. Colin 02 6977 1936.

* **Wanted GELOSO** front end for G209R Receiver or GELOSO Receiver G209R complete. Either amateur or short wave coverage. Buy or swap. Ray VK2AWQ. 02 6494 1347 QTHR.

* **Kenwood** All Mode 2M TR9000. $250. Kenwood All Mode 2M TR751. $550. Kenwood All Mode 70cm TR851. $550. Mobile mounts, books. Glen VK1GL. 02 6254 8002.

* **For Sale** Kenwood AT120. $70. Revex.W540 SWR Bridge. $120. Icom IC 04AT. $130. Yaesu FT212RH. $190. Yaesu 707 $425. Kenwood Comm RK 100kHz - 30MHz. $125. DSE Frequency Counter. $125. B&D Twin Beam CRO. $160. A&R 144/148 Lin.Amp $100. Morse keys. $60. MFJ 752 Signal Enhancer. $180. SWR MTRS $40 (ea). 80-10 Vertical $65. Scalar Coil Mobile Wips $40. All ono. VK2 DBD. (043) 93 2626.

* **Kenwood TS930** Autotune+ SP930 speaker box with inbuilt 10 amp power supply. $1095. Two QB3-300 valves boxed new $60. Spider hub for quad. $45. John VK2AVE. 02 4294 8060.

* **Wanted Yaesu FT7** or Kenwood TS120V transceiver with books and circuit. Ph. John VK2CCC. 02 4342 8587.

* **Yaesu** power transformer, FT560 VGC. $45.Transformer suit Selsyn motor plus relays. Magslip motor suit control plus relays and 240-110 transformer. Offer on these. Lyn VK2ANI. 02 69 204180.

* **Deceased** estate VK2UN Uniden $offer. ICOM IC3PA P/supply $200. Yaesu FT901 TX $offer. Yaesu FR67000 $offer. Yaesu FR600 $750. A/rotator controller Oske SWR200 Delta 4 Coax SW Low pass filter element 2m beam mobile antennas coax etc ph Colin VK2JC0 02 9803 1760.

* **ICOM IC706** mk I, comes with separation cable, mobile bracket, manual and original packing, excellent condition, $1200 ono. 02 66543195

* **Radio Amateur Call Book CD**, winter 2001, posted $40. VK2DTH (07) 46763153

* **KDK VHF FM transceiver**, two only, model 2025 MkII, both in working order, owner's manual $150. Maurie VK2OW (02) 9838

* **Kenwood TS440S**, with ATU, HF xcvr just serviced, manuals - $1100 with HyGain TH3 beam, PS50 power supply $225, SM 220 station monitor $200, TR 7800 20w VHF transceiver $225. Ken VK2SD (02) 4684 1124

* **For Sale** - IC-275H 100W all mode 2 metre $900, TS-660 10w all mode 6m quadbander $500, FC-1200 handheld 1.25GHz counter $125, John VK2TK, (02)9416 6906, email pathways@rivernet.com.au

* **Yaesu** power transformer, FT560 VGC, $45, transformer suit Selsyn motor plus relays, Magslip motor suit control plus relays and 240-110 transformer. Offer on these. Lyn VK2ANI (02) 204180.

* **For sale Kenwood** 450S $1200 ono, 50ohm load Termaline 100W to 1ghz $100, Bird 600W to 3GHz $150, other goodies, cables, books, etc free to a good home David vk2gsb@tac.com.au PH 0243673161

* **Icom** IC706. Has seperation cable and mobile bracket (never used). Very good condition and in original box $1250 ono. 02 66543195

* **TS850S** transceiver $1750, power supply PS50 $250, ATU200 $250, speaker SP430 $85, station monitor SM200 $350, all Kenwood gear. Lawrie VK2FIF 02 66864707 or lawriew@bigpond.co

* **Wanted YAESU** FP-757HD power supply with lead, GC. John 02 49824714 or jch@nru.com.au

* **Yaseu FT-101E** $290. Yaesu FT-920 $1900. Alinco DK-135 2 metre $550. Jaytech power supply $290. GAP Challenger Aerial $550 NEW!! I have to sell. Phone (02) 4965 7727.

• **Hy-Gain** med/heavy rotator, **Bencher** BY-1 keyer, **Drake** MN-2700 ant tuner, **Swisslog** sftwre. Tom, VK2OE (02) 9793 2347 or vk2oe@arrl.net

• **Kenwood** DSP-100, DSP unit to suit TS-450, 850, 950. VGC $380. **MFJ**-9020 20m CW xcvr $120. **Emtron** EAT-1000A 1kW ATU $300. **Realistic** HTX-100 10m xcvr $180. **Kenpro** KR400 control box $100. **Yaesu** MD1 desk mic $80, used cond. **Kenpro** KR800s rotator $250. **MFJ**-989C 3kW ATU, GC $450. Bruce, VK2WWW (02) 6331 1188 or vk2www@lisp.com.au

• Power **Supply**: 45/50A 13.8V reg & O/V prot, new. Ian, VK2AVS (02) 6672 2462 VK2QR (02) 6453 8759 or mackie@snowy.net.au

VK3 AREA

* **Icom IC-720** A transceiver 100 watt, GC with owner's manual, microphone, and manual tuner, details for packet radio mods, offer. Peter VK3DGF, 0417 527 214

* **"Dick Smith" D3800** 25A Variable power supply, 0 to 15v, 20a at 13.8v. S/N 92519182. $160 including P/P Aust.Yaesu FP700 20a power supply with

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built in extension speaker. S/N 4F080001. $160 including P/P Aust. Bert, Vk3DVY. (03) 5221 6804. Email virgo@webaxs.net.

* **Wanted,** weather satellite receiver eg. RX2, Proscan. R193, etc. Manuals and any adjusting tools necessary. Ken Morgan. Phone (03) 95929957. Email kea@ozemail.com.au

* **Microwave** modules MMT 144/28 Linear TVTR 10 watts output XGE. $70. Also MMT 432/28 Linear TVTR. 10 watts output. VGC. $125. Both units suitable for FT101 series. Includes DC leads and paperwork. Contact Roger VK3XRS. 03 5468 1191.

* **Wanted.** Spreader insulators only, as used on 300 ohm open wire TV line. Dogbone preferred. TV installers, check your off-cuts. VK3ATN/3NA. 03 5492 2224.

* **Quality earth leakage** protection units (RCD) for house and radio shack. 75amp $200. Various circuit breakers from $30. Graeme 03 6254 7324.

* **Antenna mast** 40 ft, two-section tilt-over $150 ono, also antenna rotator, never used, $300 ono, phone David (03) 5266 2139 (not Sundays) or email david61974@hotmail.com

* **Wanted - Hallicrafters HT-37** transmitter manual and/or circuits, plus any other data or components that complement this unit. Will pay costs. Don VK3KDT (03) 9439 1102

* **Notice Silent Key Estate Executors.** Please do not discard QSL cards. Contact Hon Curator of the National QSL Collection, Ken Matchett (03) 97285350. Postage refunded.

* **Kenwood VFO-230** ext VFO $200, MC-50 base mike $50, AVO 8 Mark 6 multimeter in leather case like new. Offers? Damien VK3RX (03) 5427 3121

* **JRC NRD-545 DSP** digital HF Rx complete with s\ware disks, manual, orig package EC $2500. HOKA Code3 Decoder v 5.00 with options 1-8 EC $550. Bryan VK3FBC 03 5775 162805, bcurtis@mansfield.net.au

* For sale **ICW2**a dualband handheld, quick charger, battery pack recently rebuilt, spare bat. case., H/B ext mic/spkr EC $350 o.n.o., contact Ian 03 57 511631 AH or 0418 57 9422 B

* **Washington** base $300. DM453 $50, amo 50J2 $140, P400 President base $250, Shinwa low pass filters $30, Discone D130J $140, 9000XLT CTCSS board UBC 9000XLT $400. (03) 5941 1680.

* **For sale ICW2a** dualband handheld, quick charger, battery pack recently rebuilt, spare bat. case., H/B ext mic/spkr EC $350 o.n.o., contact Ian 03 57 511631 AH or 0418 57 9422 BH

* **Wanted Kenwood** Station Monitor SM230, mint condition VK3IAN, Ph: 0412 354 745

* **For sale** 5 element mono band yagi 10 meters $80 ono, duo band GP vertical 15 & 10 meters $80 ono, 4 element mono band yagi 15 meters - homebrew $40 ono, 10 amp, 13.8 volt P.S.U in gwo $50 ono, Michael George, VK3JMG after hours on 9747 9342 or mob 0418 133 545

* **Heathkit** DX60B AM/CW TX $200, Kantronics KPC9612 +TNC $200, Kenwood MC-50 base mike $50, Combitech "Multiscan" SSTV modem $150, Trio 9R59DS RX $100, Damien VK3RX 03 5427 3121

Australian Radio DX Club Inc

The premier club in Australia, since 1965, for shortwave, broadcast band and utility listeners (military, marine, air etc). Contact David Brown, 51 Bambil Rd, Berowra 2081 NSW, or by phone on (02) 9533 6261.

A free sample copy of the club's magazine will be sent on request. *Reg A0011728G.*

Want to write about your hobby?

Email lenshaw@eck.net.au

VK4 AREA

* **Tracker Scout** 100w HF/SSB transceiver fitted 3995, 5455, 8022, 11612, 14977, 4WD club channels, inbuilt ATU $550. (07) 4939 1801. Noel, VK4ZAR. vk4zar@telstra.easymail.com.au

* **4 element** 10/11metre Moon Raker vert/horizontal beam vgc with assembly instructions $200, Kenpro 400rc rotator $200, Kenwood 751 all mode 2m radio

FOR SALE:

Major clear-out of equipment, some new, some mint cond, all GC, all goers. New = never used, mint/as new = maybe used one or twice for review purposes, EC= used, unmarked, quality performance, GC= quality performance, used, may have scratch, dent or whatever.
All prices are plus transport.

TRANSCEIVERS:
Kenwood SP220 filtered speaker,EC - $195
Kenwod PS50 power supply, EC - $225
MC50 desk mic, manuals, EC - $195
Icom IC-781 HF transceiver with filters, cost $10,000 new, SM8 mic, manual, absolute top shelf rig in mint condition - sacrifice for quick sale at $4,500
Icom IC-229H 2m transceiver, as new, manual - offer
Kenwood Ham Clock, world time, curved face, EC - $75

CW/DIGITAL:
Kent Key - mint - $125
Tono multimode decoder, obviously oldish but still decodes almost as good as a Kam Plus, GC, manual - $125
MFJ Grand Master Memory Keyer, mint, manual - offer
MFJ 959 Receiver Tuner/Preamp, mint - offer

ANTENNAS, etc:
* HyGain Long John - mono - 15m, 5el on 7.9m boom, 12dB gain, 34dB front back ratio - superb antenna, manual - $425

Mobile One:
M10-1, 10m, mobile whip, as new, tunable - $30
M476, colinear UHF 6dB, 450-500MHz - new - offer
CD470, ground independent 477MHz, inc. coax - new - offer
D4207, 5/8 144MHz - new - $15
DX1605SH, 26.5-29MHz, mobile whip - new - $45
DX5, heavy duty 27MHz - as new - $95
Sky Whip, heavy duty 27MHz - as new - $75
Terlin:
(1) Taps: 2.3,3.560,3.580,3.615,4.055,5.410,6.840,21.175, 28.460,28,540, GC - $225 (save $100 on new cost)
(2) Taps:
2.360,3.540,4,010,4.880,5.300,7.307,7.475,21.160,27,055, 27.355, GC - $225 (save $100 on new cost)
(3) Taps: 80m, 4.077,6.218,40m,8.198,8.707,12.308,20m, 16,423, as new - $225 (save $100 on new cost)
Benelec: 0276: 24el discone 60-1,000 MHz - new - $150
ZCG: Ground independent, 27MHz - new - $75
OTHER:
Ham IV Rotator with control unit, GC - $395
Emtronics EAT300 - cross needle SWR/ATU, as new - $225
15w dummy load, EC - $25

All of the above are realistically priced for quick sale, first in best dressed. Len Shaw VK3ALS ex editor CB Action, ARA, R&C - email preferred lenshaw@eck.new.au or (03) 57 992 943 fax (03) 57992979.

$360, Phillips FM 92 on 70cms $160 all in vgc. Mark Wylie, Vk2HMW/4. Ph (07) 4037 0937, marksplace@ledanet.com.au

* **Antenna** - Spider Multiband (USA) for mobile, maritime, residential with space restrictions. Vertical, four resonators (10-15-20-40) with patented tuning sleeves. Rated 220W PEP. Abt. 2lbs. Ht. 6 ft. anodized aluminium. Outstanding performance (balcony) 100 W 177 ctr.) Request brochure with bracket. Ball mount, 100 ft. 213U/50 coax. $300 ono. Hans (L40370 ex-HSIALK). 07 5479 4561.

* **Kenwood TS50S** HFXCVR in as new cond. With original box and manual. $1200 ono. VK4 HMS. 04 2965 4270.

* **Kenwood** TS520S SP520. $300. Mark. VK4IDX . 07 4055 6214.

* **Kenwood TS-450**. $1250. HTX-100 10 MTR. $250. KLB 24 AMP. $150. Adrian. 07 4983 1913.

* **For Sale.** Kenwood TS570S. TS711, TS811, SW2000. PS52, 2X SP-430 amplifier HL160V, HL120U, 2X KR400, packet radio VHF/UHF SWR meter dummy load 1 kw with meter all antenna. Karl. VK4CKG. 07 5499 0045 or 0413 497 481 P.S. Sale all to keep all happy.

* **Wanted** - plans or assembly instructions for Maco M105C, M104C, M103C antenna(s), pay all costs. Have plans for Maco Shooting Star (Moonraker) antenna. Reverse charges (07) 544 62107.

* **Kenwood TS-660** transceiver, all mode, quad-bander, excellent 6m DX included, Tokyo powr amplifier HL 66V $500. All VGC - Ray VK4UEI (07) 3287 6079

The North-East Radio Group (NERG) will again be holding classes for the NAOCP commencing soon and running on Tuesday nights for approximately 11 weeks followed by a trial exam. The exam proper will be held a few weeks later at a time convenient to candidates and examiners. Printed notes on various topics and assistance with morse is included in the course fees. If sufficient interest is generated, a bridging course to the full call theory will also be held. For further information please contact Stephen Warrillow VK3JNH on 9436 0435, at PO Box 416, Rosanna, VIC 3084 or at swarrillow@hotmail.com.

VK5 AREA

* **Wanted:** Battery charger for Motorola HT-220 handheld. Hank, VK5JAZ, mob. 0403-285-940

* **Yaesu 290R** with Amp $275, Heathkit SB610 CRO $30, Katsumi KD110 Keyer $50, AEA CP-1 Interface (offer). Charlie VK5KDK cmce@senet.com.au (08) 8362 1093

* **Yaesu transceivers** FT-747 $700, FT-757 $725, Philips FM900 remote head, all VGC. R. Gemhardt, PO Box 109, Burra, SA 5417.

VK6 AREA

* **Wanted.** Philips PRM80 series E band (66-88Mhz). Robin VK6LK. Ph (08) 97572613 or rlyon@netserv.net.au

* **Icom 505** 6m rig, in vy nice cond, complete with mic, book, strap and orig box $380. Norm (08) 8556 4661 or email: lee229@ozemail.com.au

* **Kenwood TM-V7A** 2/70cm mobile, current model, remote control if required, as new, $550. Emtron EPS-30A 30 amp cont power supply as new $450 ono. Doug VK5NIY (08) 8556 5064.

* **Wanted** - Emtronics DX-1B linear amplifier, consider DX-2 or other 1KW amp. Craig, VK6JJJ (08) 92520229 or craig.hayhow@woodside.com.au.

VK7 AREA

* **BC221 frequency meter**, with charts, BWD 6MHz oscilloscope mod 504, swap for small (6") DC color TV, LSG11 sig gen $60. Graeme (03) 62547324.

* **JRC NRD515** receiver inc WARC band built-in ATU NBD515 power supply, JRC speaker Mem515 unit, mint, hardly used. Kenwood TS130 built-in narrow SSB & CW filters. Allen 0417 354410 or (03) 63271171.

VK8 AREA

* **ICOM** CW-Narrow Filter FL-63 250Hz, $50, JJ, VK8JJ (08) 8953-0065 or vk8jj@ozemail.com.au

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* **Wanted** Two TX 6000 UHF Electrophone hand helds fitted with scramble boards. CFA Motorola listening sets. Ph. Allan 0419 313075.

* **Sawtron** 990 25 Watt UHF CB with new remote kit, commercial quality. Two banks 88 channels, EC, with mounts, mic. Pete VK3TQ. 03 5427 2660. 0438 093318.

* **Sangean ATS 818cs** SW receiver, two years old, EC, 45 presets, SSB RF gain, FM stereo, with manual, battery and charger $170. Eric (02) 972 55507

* **Wanted** - operating manual for Sawtron UHF CB, remote head model 999, or info on how to use. Ray (03) 5996 6106.

* **For Sale** IC-R8500 comms receiver, 18 mths old, in very good condition. $2000 ono. Contact Rob Duncan, duncr@ncable.com.au

YAESU'S DONE IT AGAIN

YAESU

FT-817 HF/6m/2m/70cm Transportable

The world's first self-contained complete battery powered multimode transceiver covering all the Amateur bands from 160m to 70cm. Provides up to 5W PEP output, with SSB, CW, FM, and AM modes, plus reception of the 100kHz-56MHz, 76-108MHz (wideband FM only), 108-154MHz, and 420-470MHz ranges. Operates from 8 x "AA" size batteries (not supplied) and Alkaline or NiCad batteries may be used. An external 13.8V DC power source can be easily connected to the transceiver, and a Menu function will allow charging of the optional FNB-72 NiCad pack from the 13.8V DC source. Includes "big rig" features such as IF Shift for reduced adjacent channel interference, IPO to allow by-passing of the RF preamp on HF/6m for improved strong signal performance, an IF Noise Blanker for reduction of impulse noise, and a front-end Attenuator for more pleasant reception of extremely strong signals. Includes 2 antenna sockets - a top panel BNC socket plus a rear panel SO-239 socket and the menu system allows you to define which socket will be used on the HF, 6m, 2m, and 70cm bands. Includes: 200 memory channels with Alpha tagging, VFO and Memory scanning, Dual Watch and Priority Channel operation, as well as Smart Search. CTCSS and DCS encode/decode circuitry is built-in as standard. Supports 1200 and 9600 baud VHF/UHF Packet operation, and the Menu system allows custom setups for RTTY and PSK31 (USB & LSB), as well as two User defined models (eg. for SSTV use). Supplied with the following accessories: MH-31 handheld microphone, FBA-28 internal battery holder, YHA-63 Whip antenna for 6m/2m/70cm operation, E-DC-6 DC cable, and a shoulder strap.

D 3680

$1495

2 year warranty

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information. Offers expire 30/6/2001

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A remarkably compact tri bander.

VHF/UHF Multiband FM transceiver 2M, 6M, 70cm, 23cm with wideband receiver 5MHz - 1300MHz 124 alphanumeric memory channels Ni-MH battery tone squelch, "joy stick"

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The new dimension in the VHF/UHF World!
Tri band multimode transceiver 2M - 100W, 70CM - 75W, (optional 23CM,10W) 9600 bps packet operation Satellite communication Reverse/normal tracking doppler shift compensation CIV capability for PC control

IC-718

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A superior performer with simple, straightforward operation with keypad. Optional DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

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The HF & 6M multimode professional performer.

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